The Builder.

VOL. XVI.—No. 802.

Construction of Hospitals.

Ventilation.

Blackburn Infirmary.

IN previous volumes we have commented earnestly on the errors observable in the construction of our *Hospitals*, and shown their inherent defects.

Two thousand years ago Hippocrates, when asked, "Who is the physician that is an honour to his profession?" said,—"It is he who has merited the esteem and confidence of the public, by profound knowledge, long experience, conscious integrity; who has been led through the whole circle of the sciences; who has a due regard to the seasons of the year, and the changes which they are observed to produce—to the states of the wind peculiar to each country, and to the quality of its waters; who marks carefully the locality of towns, and of the surrounding country, whether they are low or high, hot or cold, wet or dry; who, moreover, neglects not to mark the diet and regimen of the inhabitants, and, in a word, all the causes that may produce disorder in the animal economy." And yet, strange to say, those buildings which our physicians regulate, and over which they preside, continue up to this very hour to be erected on plans ill calculated to aid in the restoration of health, in the face of principles laid down long ago in France, and with the evil results of existing arrangements in this country constantly before their eyes. When we stated, in respect of the Victoria Hospital at Netley, as then planned, before the building was contracted for, that, if it should ever be full of patients, more diseases would be generated there than cured, we were pooh-poohed by some and abused by others. A very short time, however, elapsed, before the correctness of the assertion was seen. Memorials were presented and alterations were made. What is being done there at this moment is a mystery, and we hope Mr. Tite will keep an eye upon the subject in the House of Commons. Many of our provincial, and some of our London hospitals, are most unhealthy. If a commission were issued to inquire into their condition, and evidence were taken, the results would startle the public as much as the Report of the Barrack Commission did. There are some where patients, after an operation, have a less chance of life than they would have if they were taken into the fields and covered with a tent. "We touch God when we lay our hands on a human body," says a German poet:—certainly we deal with the divinest and most consummate work of His hand; but it must be supposed that this conviction is not very general, if we look to the carelessness of human life and suffering everywhere manifested. No one can have any conception of the smallness of the stock of sanitary knowledge in the world unless he visit our English hospitals, where, if anywhere, perfection of sanitary arrangements ought to be found. Even in the case of the most recently erected provincial hospital, on which from 20,000*l.* to 30,000*l.* have been spent, we are compelled to say we have great dislike to the plan and arrangement, and anticipate anything but satisfactory results. It is to be hoped that, at any rate, the governors will keep accurate records. We have no faith, as we have often said, in simply "scientific ventilation" for hospitals. The necessity for artificial ventilation implies, we think, a defect in plan. In this belief we are more and more confirmed. Miss Nightingale, in her replies to the Barrack Commissioners, when asked to say what she thinks is "the best system of ventilation for a hospital, and why?" remarks,—

"The doors, windows, and fireplaces should be the means of ventilation for such wards as these: nothing else is wanted. If a hospital must be ventilated artificially, it betrays a defect of original construction which no artificial ventilation can compensate. It is an expensive and inefficient means of doing that which can be done cheaply and efficiently by constructing your building so as to admit the open air around.

But there are buildings of original defective construction which it is undoubtedly necessary to ventilate artificially. And in countries where fuel is dear and cold severe, the problem complicates itself, because it is a less consumption of fuel to warm the fresh air as you admit it.

In the case supposed, warming is a necessary part of ventilation, and heating the air required heats the wards, without extra cost of fireplaces, which always burn many times the quantity of fuel expended for warming.

In England, where fuel is cheap, there can be no such excuse.

If attendants cannot be trained to keep the rooms ventilated without draughts, there is a defect of intelligence, and attendance on the sick is not their calling.

Occasionally, ventilating shafts, carried up from the ceiling of the ward to the roof, will be found an advantageous means of renewing the air.

There should be one or more open fireplaces in the ward, but lofty, so that the throat of the chimney shall be above the patient's head and bed.

We look upon the chimney as the best ventilating shaft; and one disadvantage of artificial ventilation is, that you must then supply the fire with its own consumption of air by a shaft to itself, or it will take the air from the artificial ventilation, and cause it to cease to act. Whereas, with natural ventilation, the fire sets it acting, takes the air from the room, and is the most valuable means of ventilation.

Our grandfathers' lofty fireplaces are the greatest loss in modern house architecture. The little low fireplaces of this date bring the best current of air below the stratum in which we are breathing. With our system, to breathe the best air, we must not be more than six years' old, or we must lie down."

Mr. John Roberton, of Manchester, of whose labours we have before spoken, has recently published a second pamphlet, with a view to the Improvement of Hospitals for the Sick and Wounded.* In this, he says,—

"As exception has been taken to my comments on what is called 'scientific' ventilation, I beg to observe that I have little to say regarding it, unless as applied to hospitals; but I here repeat what I formerly stated, that so wide is the difference between the wants of a ward filled with the sick and wounded with respect to ventilation, and the wants of every other kind of apartment in which people in health congregate or lodge, that the means which are found sufficient to maintain the purity of the one fail in maintaining the purity of the other; and an architect who has not submitted to make himself familiar with the state of the atmosphere in, for example, the crowded wards of a badly-constructed hospital at those hours of the day and night when the admission or exclusion of air is left to the nurse and patients, is ill qualified to form an opinion on ward ventilation. Until the architect will consent to give his organ of smell a few minutes' practical training, about six or seven o'clock in the morning, in a crowded surgical ward, he can never realise the importance of a truth, which can hardly be enunciated with too great emphasis—that not merely must a ward, if it is to be kept sweet, be ventilated in the ordinary sense of that term, but it must be so ventilated as to secure for it the constant renewal of the contained air—the displacement of the fœtid effluvia ever being admitted from the bodies of the sick and wounded, and the substitution instead, of air, not drawn from cellars, corridors, and passages, but admitted direct from the store of the unpolluted heavens."

It should not be forgotten, when the purification of an hospital is under consideration, how liable "scientific" modes of ventilation are to disappoint, owing to derangements occurring in the apparatus; insomuch that the most renowned inventions of this sort are ever being pronounced failures, and so given up. "Nature's ventilation,—the unceasing flow, parallel to the earth's surface, of the atmospheric tide,—may be depended upon. Only let there be openings, facing one another, in the side walls of an apartment, and a through current of air never ceases: it flows on with the same certainty that may be predicted of the law of gravity itself."

He has found the hospitals in Germany very bad; those in Belgium comparatively good. Concerning the materials to be used in hospitals, he says,—

"The material of which ward floors should be composed would be easily decided had we marble in such abundance as one sees in the Low Countries. In Holland, all the better class of shops are flagged with marble; and the lobbies, and even the steps of stairs in the houses of the opulent, are of beautiful polished marble. The first ward I entered in the St. Elizabeth Hospital, Antwerp, had a polished marble floor; but this did not extend to all the wards. At Cologne, too, some of the hospital corridors were paved with marble. In the hospital at Liege, the floors were of oak, cleansed twice a day; and unquestionably, save marble, the best material for the flooring of wards is oak, painted, waxed, or varnished, as in the great Hamburgh Hospital, and, I think, in several more of the hospitals I visited; for it is easy to clean, and when moist can be easily rubbed dry. The principle—which cannot be too strongly urged in reference to the floors, walls, and ceilings of hospitals—is, that every kind of porous material ought to be avoided. If all the interior surfaces of an hospital were of some material like glass—hard, smooth, and polished—so much the better for its sanitary condition.*

The most decisive test as to the good or bad sanitary condition of a hospital is the tendency in wounds, received by accident or made by the knife of the surgeon to heal speedily or otherwise—to heal or not to heal, as quickly as would happen were the same cases treated singly in a commodious private house. "And if an hospital do not afford advantages equal to the best private dwelling, it is assuredly, to use the mildest term, a failure—I might, perhaps, without impropriety, say, a snare and a curse. Yet in how few of our hospitals is it that compound fractures, amputations, the excision of large tumours, and the like, do not linger far longer than they would were they treated at home. The test referred to has never yet, I imagine, been applied to the results of hospital practice, else it would have brought into open day a mass of harrowing evidence as to the weeks and months of suffering needlessly inflicted on multitudes of the most valuable members of almost every industrial community in England, who have had cause to bewail the evil fortune that sent them into an hospital; to say nothing of the waste of hospital funds, owing to the enormous enhancement of expense in the treatment of every such lingering case; for it would be

* "A few Additional Suggestions, with a View to the Improvement of Hospitals." By John Roberton. Reprinted from the "Transactions of the Manchester Statistical Society."

* "See, in the *Builder* of December 5th, 1857, page 709, a curious and interesting notice of 'Water Glass,' and its application. This is a kind of cement having a powerful chemical attraction to mortar, brickwork, &c. drying quickly, being very durable, smooth, and hard, like glass. How far it may be found suitable for coating the walls of hospitals, I do not venture to determine."

wrong to overlook the fact that perhaps every social evil, not excepting the present, admits of being estimated at its money value."*

The pamphlet contains a plan of the intended infirmary at Blackburn, recently described in our pages, and which is admittedly founded on Roberton's valuable statements, and the observations in our own pages. The system of separate pavilions, with windows on each side opposite to each other, is adopted, somewhat too confined by the chapel and dining rooms, but displaying a considerable advance towards a model arrangement. We shall watch its progress with interest.

A MEMORANDUM ON THE COMMERCIAL QUESTION OF ARCHITECTURAL COMPETITIONS.

THE architectural competition system has been for a long time criticised with much anxiety by the profession, in respect of detail of regulation as between competitor and competitor; but it seems to me that this must be all in vain until we have first examined into its fundamental principles, as between the competitors as a body on the one part, and the client on the other part. These parties are seller and buyer, in a commercial transaction; and if there be anything unsound in respect of this, the primary relation of the parties to each other, the whole transaction thus unsoundly begun, will be unsound to the end.

First, let us look at the elementary idea of buying and selling involved in the obtaining of an architectural design, in the simple or usual manner. The client being about to build, requires a design. He applies to a maker of such designs, an architect, and explains his requirement. The architect makes a design; and (if the transaction goes no further), is paid for his work a certain standard price, which for the sake of ready-reckoning, we may call in ordinary works, *one per cent.* on outlay.

But a second client, being advised that *a choice of designs* is preferable, how shall he obtain this? Here is the competition question. How shall he procure several designs out of which to choose the best?

A first mode.—He applies to several architects, and obtains from each a design: he agrees to pay for each design the standard value of one per cent. and makes his choice from among them. This is a first-class select competition.

A second mode.—He obtains several designs, as in the former case; but he agrees to pay only for the one which is best the full standard value as a perfect project, and for the others he will only pay their commercial va ue as imperfect projects. This is a second-class select competition.

A third mode.—He collects designs indiscriminately from all who offer: he agrees to pay for the best one the full standard value; and for the others their commercial value, as in the last case. This is a public competition.

Now, all these modes of proceed.ng are commercially sound. The client is not satisfied with requesting *one design* to be made for him: he requests *several designs* to be prepared for a choice, which is quite another thing. And if he is willing to pay a fair value for this choice, it cannot be disputed that competition in the whole of these three forms is serviceable, both to the art, and to the profession, in all its classes of practitioners. What, then, is this fair value of choice?

An architectural competition design is not a sample of goods. The error here indicated is a very likely one for a commercial community, such as the English, to fall into; and no doubt this lies at the root of much of the abuse of architectural competition; but such an error has only to be pointed out, and a commercial man will at once perceive it, and for his own part repudiate it. He is willing to pay equitably for value received; he has no wish to have designs prepared for him without fair payment; he merely desires to know what this fair payment is.

The principle of fair payment in any such transaction is this. The contributors on the one part contribute so much in money, or money's worth; the receiver, on the other part, pays a precise equivalent in money or money's worth. If ten persons contribute 1*l.* each, under the arrangement that he who draws the highest card shall have a prize of commercial value, this prize must be 10*l.* in full. The transaction would be a fraud, if any attempt were made to pass off 9*l.* as the prize. This is the commercial principle now in question.

In the case of the first mode stated, or first-class select competition, the choice of a certain number of designs is to be paid for by as many full standard values: is this fair towards the client? It is: the competitors have been selected as first-class men; and their designs are therefore to be taken as all perfect works, and each of the full value. The value of the choice is therefore the sum of the standard values of the whole: and, if in such a case the number of competitors be reasonable (say three), the three per cent. for such a choice of designs, in a case worthy of the principle, is not money wasted.

By the second mode stated, or second-class select competition, the client may indulge himself with a larger number of designs to choose from. As a whole, they must be supposed to be of one rank less in merit; because the first-class man declines to work for less than a certainty of full standard value. But still the result may be none the less successful for the client; because merit of design is not a thing of certain calculation, but in great degree of accidental happy fancy. What, then, is the value of this second form of choice? The best, or one perfect design, is of full standard value of course. What is the commercial value of the rest?

A perfect design (so to call it) has its value made up of two considerations: first, the labour and outlay involved; secondly, the peculiar merit or adaptation for the case, which may be called its perfectness. The assumed per centage pays for both of these, say in equal moieties—one-half per cent. for each. Then suppose a competition of our second mode embraces (as a reasonable number) five designs. The best is of the standard value of a perfect work—one per cent. in full; the other four are of a commercial value of one-half per cent. each, as for the labour and outlay alone, and not the merit of perfection. That is to say, each of the four defeated competitors, by virtue of his selection as a competent man, is to be considered as having contributed to the transaction the value of his outlay and labour, equal to one-half per cent. The value of the aggregate, therefore, is one and four half per cents, —in all, three per cent.; and this is the lowest fair value for the choice. The best or perfect design is to be paid for in full, and the half-standard value of the others divided amongst these as comparatively imperfect designs. And if the competitors agree that the inferior payments shall be not all equal, but graduated according to merit, there is no objection to this; only let not the prizes be too few.

But there is *the third mode*, or public competition. The choice is still more extended; no limit is imposed whatever as to number. So far commercial soundness is still satisfied, provided the fair value of the choice be paid for it. What then is this value now?

The client declines in the second form to pay the full standard for the defeated designs; he now declines again to undertake to pay without limit, for a number without limit, even upon the principle of half-standard price, as in mode second. The commercial value must, therefore, be computed on a new basis. Perhaps the best course will be this. Is the public competition worth more or less than the select competition of the second mode? If the highest rank of men decline the second as speculative, an inferior rank will now decline this third mode for the increased reason. The competitors will be, as a whole, of less standing. But, on the other hand, unknown merit comes in, and greater numbers; we may safely assume from experience that these restore the balance, or very nearly so. The value of this third choice, that is to say, in ordinary cases, may be about the same as that of the second; and, taking five as a proper number of competitors for the second mode of select competition, then their three per cent. of aggregate payment will still hold good as the fair value of a choice by public competition.

In other words, the result of all this is, that *three* selected *first-rate* architects, or *five* selected *second-rate*, or *all that offer unselected*, may be about equal as to the value of the choice. And on reflection, most competing men will, perhaps, think this as fair an approximation as can be safely relied upon.

According to the above estimate, then, three per cent. on outlay in common cases,—the full value of a competition of three first-class men,—is the fair value of choice in a select competition of five of a second class; and the same in a public competition without limit. That is to say, for a work of 2,000*l.*, 60*l.* ought to be paid for the competition, in whatever case. If the transaction is to be commercially sound, nothing less can be accepted; *and if the transaction is not commercially sound, it ought not to be entered into by any man of business.*

Whether this outlay of three per cent. would be objected by respectable persons generally as clients need not be argued; no one would look upon it other than as a very trifling charge in the entire outlay, and money well laid out for fair value received.

We come now to consider other advantages involved.

How far the engagement to employ the successful competitor to carry out the work ought to come into account is an important question. If the successful competitor is awarded one per cent. as the fair value of his design, and is further employed to carry out the work at the other four per cent. as being the person whom it is the best interest of the client to employ, there is nothing here to spare,—nothing to be an inducement to unsuccessful competitors, on commercial grounds, to give up their proper claims as laid down. The commercial value of the choice remains, therefore, thus far as it was.

The value of the opportunity for acquiring professional advancement is a thing which has to be taken into view. But upon commercial principles the client will certainly not lay claim to appropriate any such allowance to himself; he will not ask that the value which he pays for the choice should be reduced on this account. The value of the opportunity will turn to his advantage in another way: it will procure for him greater anxiety for success on the part of the competitors, and thus greater merit in their works.

But commercial soundness merely as to the value given and received is not our whole question: commercial principle is not yet fully satisfied. The adjudication of reward must be commercially sound also; judgment must be adequately weighed out. How shall a competition be adjudicated upon? By the opinion of the uninitiated client? Under mode first, when every one is paid in full, yes—if first-class artists have no objection to so mean a contest. But, under mode second, by no means; for the competitors take a risk in the transaction, and must be consulted. And, under mode third, this is still more the case.

It is the essence of all the availableness of competition, that the judgment should be critically perfect. The only thing that competitors can undertake to go by is what we call merit; and nothing but merit can be acknowledged. Architecture is a study in which no non-professional man of any knowledge will pretend to be a perfect judge of merit. If the most learned of our amateurs could work in an architect's office for even twelve months, the amount of knowledge he would acquire of that kind which shows us how little we know, would astonish him. What then if he had twenty or thirty years of it? In one word, the only fit judge of architectural merit is an architect of experience; and for the interest of the client none the less, the only decision which is likely to be approved of by himself in the end is that of such a person. To this principle all men of business would agree without a murmur.

The errors of the competition system as at present practised are many; but it is no matter wherein they consist in detail. If the elements of commercial soundness are violated at the beginning, this is enough to produce any amount of error in the end; and enough to account for it all. Restore the balance, and at any rate the ground is safe. Claim the proper commercial payments, and the proper critical adjudication, and everything else may be expected to come right of itself. But if the payments are not of fair amount, and the test is not that of recognised merit, nothing can make the system either honest or honourable.

ROBERT KERR.

At a meeting of the Architectural Association on Friday evening, the 11th inst. the above memorandum was read in connection with certain resolutions reported by a committee of the Association appointed to deal with the competition question.* Mr. Kerr previously explained the circumstances in which he appeared before the meeting. His remarks on Mr. Morgan's paper at the Institute having been, as he thought, misunderstood, he had put his argument in writing for publication, believing it really to touch the root of the matter. He had, however, taken the opportunity of attending a meeting of the Association's competition committee last week, to lay the memorandum before them, and explain it; and the result had been their adoption of the two resolutions now reported. He had also undertaken to attend on the present occasion, and present the memorandum to the association at large, in explanation of the principles thus laid down. In the course of further observations, he argued that one of the greatest mistakes of the profession, in respect to this question, had been the idea that men of business, when calling on architects to compete, desired to overreach them. Such persons, he contended, erred only from want of information; and he had no doubt that any committee of gentlemen setting on foot a competition for a projected work, only needed to have the equity of the matter explained on commercial grounds, and they would be too glad to understand it, and be enabled to act fairly. He thought that if the resolutions now reported were impressed upon any committee in such circumstances, in most cases the result would be the immediate appointment of one or more architects of experience to take charge of the entire competition, from instructions to adjudication, when details of administrations would be found to be easily adjusted.

THE CHATEAU OF AMBOISE.

ABOUT fifteen miles higher up the Loire than Blois stands the picturesque little town of Amboise, nestling snugly at the foot of the château of which I am about to give an account. The château stands upon a high and precipitous rock, and, the stone of which it is built, being of a very dark colour, it has altogether a very formidable and imposing appearance. It is said to have been built by Julius Cæsar, and to have been called by him Ambacia. It is surely more probable that its present name is a corruption of that of Ambacia, than that Mr. Murray's derivation, *"ab ambabis aquis"* is correct. Early in the sixth century Amboise was the scene of an interview between Clovis and Alaric, king of the Visigoths. After his coronation Louis XI. went to Amboise to visit his mother, Mary of Anjou, who had retired thither after the death of her husband, Charles VII. It was there that he instituted the order of St. Michael. It was the scene also of his death. Warned of his approaching dissolution by an attack of apoplexy, he caused himself to be carried thither, and expired soon after. His son, Charles VIII. a prince of very refined tastes, brought from Italy a number of artists, under whose direction he caused the little chapel of St. Hubert to be built. It stands on the very edge of the rock, and overhangs the arched doorway, which is the principal entrance to the château. Time and the ruthless hands of revolutionists had done much to destroy it; but the late king caused it to be completely restored in accordance with the original design, and it is now a perfect gem of its kind. The style is Decorated Gothic, profusely ornamented. The carving is so fine and delicate as to resemble lace-work, and the marble whiteness of the stone adds to the illusion. Above the door is laboriously and beautifully sculptured the conversion of St. Hubert. The saint, so says the tradition, had remained in the darkness of paganism, until one day, while he was out hunting, the miraculous appearance of a stag carrying a crucifix between its horns effected his conversion. I know of nothing approaching in beauty to this little chapel unless it be that of Henry VII. in Westminster Abbey. Charles VIII. had also commenced substituting a magnificent palace for the old château, but no more than the two immense round towers, which still remain, had been completed when death cut him off. His plans were never carried out by his successors. Within the eastern tower, which rises from the base of the rock, and is 60 feet in diameter and nearly 100 in height, there is a spiral road, so broad and of so gradual an ascent that one might drive a four-in-

* When remarks are made as to the unhealthiness of an hospital, at some particular season, the reply usually is that erysipelas is epidemic—that it is found to attack wounds and sores under treatment in private dwellings; but, on inquiry, the dwellings referred to are generally found to be cellars, or the sleeping-rooms in back-to-back cottages, where a good sanitary condition of the apartments, supposing surgical cases treated there, is impossible.

* 1. "That in any competition, the aggregate amount of premiums ought to be the full commercial value of the choice of designs; that is to say, of the right of selection out of many." 2. "That professional experience alone can adjudicate upon the relative merits of the designs."

hand without difficulty from the top to the bottom. It is, in fact, an inclined plane working round the interior newel. The same peculiarity of corbelling which I mentioned as seen on the oriel windows at Blois* is to be observed on the portal of this tower; but the details, instead of being Roman, are more Gothic in their character.

The fine gallery which faces the Loire was constructed by Louis XII. It commands a most extensive view of the surrounding country, which, with the exception of the forest of Bleré, is almost entirely covered with vines; and on a clear day the noble spires of the cathedral of St. Gatien, at Tours, which are six leagues distant, may be distinctly seen. The garden of the château is also owing to Louis XII. who caused it to be made for the use of Anne of Bretagne.

Francis I. who spent his boyhood at Amboise, always retained an ardent affection for his "old familiar home," and on his accession to the throne made it the scene of frequent tournaments, in which, as in all other chivalric sports, he himself excelled. Leonardo da Vinci, who was one of the many Italians attracted to France by the encouragement given to art by this prince, inhabited a small château in the neighbourhood of Amboise. Francis added two wings to the château, one of which, however, was subsequently destroyed by fire. The remaining one is in the style of the Rénaissance, and the dormer windows are as usual especially beautiful. In my account of the château of Loches,† in speaking of the variety of designs of the dormer windows of the Renaissance, I mentioned that when I came to speak of this château I should have occasion to notice another variety of design. The peculiarity I there referred to is that the upper part of the window strongly resembles a species of tomb-stone which is not unfrequently to be met with in Scotch church-yards, where we have a pedestal on either side, with a double dado, surmounted by a pediment.

The next page in the history of Amboise is a dark one; but space will not allow me to do more than glance at the celebrated *conjuration d'Amboise*. This conspiracy was formed against Catherine de Medici, the Duke of Guise, and the Cardinal of Lorraine. On the 18th of March, 1560, La Renaudie advanced at the head of the rebels to attack Amboise; but the queen-mother and the Guises having been apprised of the projected attack, sent a body of soldiers, who encountered the conspirators near the town, and utterly defeated them. Then commenced a scene of carnage and wholesale slaughter, which was only surpassed by the terrible massacre of St. Bartholomew. La Renaudie was killed, and his body hung high above the Loire, with the inscription, "*Chef des rebelles.*" The streets literally ran with blood. Some were sewn up in sacks, and thrown alive into the river, while many were hanged from the iron stancheons of Louis XII.'s balcony. A scaffold was erected in the court of the château, and the court ladies assembled in full dress to witness the executions. The admirers of Mary Stuart may probably have some difficulty in accounting for the fact that she was among those who graced (may I not say *dis*graced?) the spectacle. The reader is acquainted with the tragical fate which awaited the Duke of Guise and his brother the cardinal. So true is it that "they who take the sword shall perish with the sword."

After the reign of Henry III. Amboise ceased to be a royal residence, and was only made use of as a state prison. Fouquet, Louis XIV.'s minister, and Lauzun, were imprisoned there; and in our own time the emir Abdel Kader was confined there till liberated by the present Emperor of the French. This chief was allowed to have his family with him, which included four wives and a large retinue. Since his liberation the rooms have been stripped of their furniture, so that there is little to be seen by going over them. In the garden there is a monument erected by the inhabitants of Amboise in memory of one of Abdel Kader's wives, and fifteen of his suite, who lie buried near the spot.

This concludes my notice of the château of Amboise, and with it the task which I set myself in my first letter. Imperfect as I am aware my descriptions have been, I yet trust they may have been sufficiently interesting to some of your readers, whose professional duties admit of a month or two's relaxation, but who have not yet availed themselves of the easy communication between this country and the continent, to induce them to pay a visit to the centre of France. I can safely say that, in addition to those monuments of architecture, which I have attempted to describe, they will find a profusion of architectural remains well worthy of their attention. J. M.

* See p. 50, ante. † See p. 308, ante.

WHAT OUGHT GAS TO COST?

THE public interest, a few years ago, was aroused in this metropolis to the gas question, on the formation of a new company, which proposed at once to reduce the price of that article from 8s. to 4s. per 1,000 cubic feet, stipulating at the same time to make a further reduction to 3s. on acquiring a certain number of consumers as customers. This company at length accomplished their object so far as obtaining an Act of Parliament, notwithstanding the combined opposition and hostility of the old companies, which in some instances amounted to brute force. Within six months of deciding and arranging their project, they were fully and efficiently at work; and at a meeting of the Board of Directors, within six months thereafter, having fully made good their pledges, and satisfactorily carried out their scheme, the announcement was made of a dividend of 6 per cent. per annum, on the proprietors' capital. In this essay, my aim and object is to bring before the public of this country, the justice, the importance, and the perfect practicability of a further reduction in the price of gas, from its present rate per thousand cubic feet, to 6d. per 1,000 cubic feet; and by proper management and the adoption of an improved system of manipulation in the chemical products, exclusive of the carburetted hydrogen gas in a state of purity (the greater the purity of the gas, the larger the other products from the combustion of coal), the possibility of even making them yield a very handsome profit to the maker, by making the gas a free boon to the community. As illustrative of my theory, I submit the following facts:—In the United Kingdom, the quantity of pit coal distilled, or carbonised, for the production of illuminating gas, amounts to 3,510,000 tons per annum, which, by devoted labour, practical calculation, and observation, continued for a period of sixteen years, I have ascertained, produce on an average 11,000 cubic feet of gas per ton, or an aggregate of 38,610,000,000 cubic feet, yielding a rental at the present ascertained average price of 9s. 5d. per thousand cubic feet, of 18,178,875*l.* sterling. Now, my object is to save this amount to the community, and I am prepared practically to demonstrate that, by carrying out an improved system, scientifically and efficiently, and converting the resulting products from the carbonisation of coal for gas in the best form, after supplying the present demand for the arts and manufactures of this kingdom, there would arise an unlimited demand for the surplus. This surplus, if combined with the waste matter of our manufactories, together with the animal and vegetable refuse, would form an amount of fertilising elements which, on being judiciously applied to the soil of this kingdom, would enable our agriculturists to have more corn to export than we now import; and I have no doubt that in a few years our soil would acquire the fertility of that of Chaldea previous to its spoliation and desolation under Cyrus, and yield to the husbandman its two hundred-fold of increase, instead of its present yield of ten or twelve fold. I will touch on this subject again before concluding.

In this kingdom the following will be found to be a pretty close approximation to the actual state of the gas question, without requiring much modification, being the result of careful experimental calculation:—

The quantity of pit coal carbonized for the supply of England, Wales, and Scotland with illuminating gas, may be fairly estimated at 3,510,000 tons per annum, which at an average ascertained cost of 10s. 8d. per ton, amounts to the sum of 1,872,000*l.*

Illuminating gas, produced at the rate of 11,000 cubic feet per ton, 38,610,000,000, at the present average market price of 9s. 5d. per 1,000 cubic feet, will yield a rental of 18,178,875*l.*

Ammoniacal products evolved and passing with the gas from the retorts, and deposited by condensation in a state of hydrosulphuret and carbonate of ammonia, in solution, in a crude state, commercial average value of this produce from a million cubic feet of gas, 35s. Thus, 38,610,000,000 cubic feet at 35s. per million, 67,567*l.* 10s.

In using the proper purifying materials, the saturated solution will be equal to the production of one ton of sal-ammonia in a state of sublimation per million cubic feet of gas, present market value whereof is 55*l.* per ton, or 38,610,000,000, at 55*l.* per million, 2,123,550*l.*

I estimate the condensation of smoke with the ammoniacal liquor, to amount to 150 gallons of tar per million feet of gas, which, by the agency of a cheap commercial article with a metallic base, I have discovered, under proper conditions, can be converted, by inducing spontaneous combustion, into a highly valuable, dry, fertilising compound, market value for agriculture, 8*l.* per ton, 5,791,500 gallons, the estimated produce will yield with the combination aforesaid, 24,131 tons at 8*l.* per ton, 193,048*l.*

I estimate the resulting carbon or coke, as fully equal in value to one-fourth of the coal employed in its production, say one-fourth of 1,872,000*l.*—468,000*l.*

Summary of the foregoing cost of coal for the production of 38,610,000,000 cubic feet of gas, 1,872,000*l.*

Chemical products, solution of hydrosulphuret and carbonate of ammonia	£ 67,567 10
Sublimated sal-ammoniac	2,123,550 0
Prepared tar	193,048 0
Coke or charcoal	468,000 0
Total	£2,852,165 10

Thus leaving a balance for working expenses, management, and interest of capital, of 980,165*l.* 10s.

Without the gas rental, or including the gas revenue, the amount would be 19,159,040*l.*; or a gross profit of more than 1,000 per cent.

I estimate that 50 per cent. on the cost of coal, would amply suffice to pay the interest of capital, labour, management, &c.; which, added to the coal amount, would give 2,808,000*l.*

Thus leaving a surplus on a year's working, exclusive of the gas revenue, of 44,165*l.* 10s.

This surplus profit would be found to be considerably increased by concentrating the seats of supply as much as possible; as, where rival companies exist, with mains and the requisite appliances of supply and distribution multiplied, and running parallel with each other, their cost, and wear and tear, are much increased beyond what is required, from each rival company having their vehicles of conveyance of sufficient capacity for the transmission of the whole supply. Pit coal, be it observed, is a formation from the decomposed vegetable matter of past ages of the world, before man converted it to his use; and it becomes us so to investigate its properties, that such an immense and exhaustless source of wealth may not be lost sight of or misapplied.

The inert elements of the food of man, animals, and plants abounding in this our sphere, only require development and organization to sustain tenfold the present inhabitants. What must have been the fertility of the soil about the ancient city of Babylon, when they were in a condition to store a plentiful supply of provisions for twenty years, during the siege under Cyrus? We have not yet succeeded in combining the elements of organic bodies by artificial operations. They show a tendency to pass into ternary and quaternary compounds; and even in the living bodies, products that have been organized appear essential to the formation of new ones. Thus vegetable life is in a great measure supported by the decay of former vegetables, and granivorous and carnivorous animals require vegetable and animal substances for their sustenance; for, although it be true that carbon, hydrogen, oxygen, and nitrogen are the ultimate elements of our food, we should soon starve upon charcoal, and water, and nitrogen, or upon any of their compounds that had not already gone through the process of organization. As, therefore, we cannot so combine the insulated inorganic elements as to imitate the products of organization, we are deprived in our researches upon these forms of matter of the aid of synthetic proof, in the ordinary acceptation at least of that term, and in determining the nature and relative proportions of the elements of organic compounds, we are limited to analytic operations; and even in them, numerous difficulties will be found to occur, especially affecting the determination of the integral atomic weights of the compounds, and the theory of their elementary arrangements. The first attempt, I believe, at the analysis of vegetable substances, consisted in subjecting them to destructive distillation, and this method was greatly extended by Hales, Priestley, and the earlier pneumatic chemists who paid especial attention to the gaseous products of such operations, which, together with aqueous and oily liquids, and a residue of carbon, constituted the results of the process. Hence the conclusion of the older chemists, that air, oil, water, and earth, including under that name the carbonaceous residue, or *caput mortuum*, as they called it, were the universal elements of organic bodies. It is, however, evident that most of these are secondary results,—that they are products of the operation, and accordingly their composition and relative

proportions are liable to infinite variation, dependent upon the manner in which the distillation has been effected. In modern analysis, therefore, this method is rejected, or at least only adopted where some general inference is to be drawn from the nature and proportion of the newly-produced compounds. Ammonia, for instance, denotes the presence of nitrogen; a large quantity of oil announces excess of hydrogen; and of acid, excess of oxygen. The uncondensed gases may also be examined.

JAMES HARLING.

SCENERY AND THE STAGE.

The Princess's Theatre. — The Merchant of Venice.—Venice is essentially a poetic city. If we would recall a recollection of it, it comes in the language of Shakspeare, or Otway, or Byron. "*C'est la plus triumphante cité que j'aye jamais vue,*" wrote Philippe de Commynes, in 1495. With its palaces and prisons, water-roads and weedy banks, its doges and gondolas, although it stand now but "a ghost upon the sands of the sea," we hear of it only in measured language, see it only in brilliant colours. In the last revival at the Princess's Theatre, Mr. Kean has brought this

"Pleasant place of all festivity,"

before the eyes of the Londoners, presenting to them successively with the powerful aid of Messrs. Grieve and Telbin, St. Mark's-place, the Merchants' Exchange on the Rialto Island, the Rialto-bridge and Grand Canal, the Hall of the Senators, and other parts of the often painted city. For the second act, showing the exterior of *Shylock's* house, a bit of Venice is admirably built up on each side of a canal, along which gondolas pass and repass, a practical bridge spanning it. The water is very effective, and in this scene the curtain comes down on a wild group of maskers and revellers, picturesque and characteristic. The Saloon of the Caskets, in *Portia's* house, at Belmont, seen several times during the play, is a very elaborate Italian interior polychromed, and furnished with candelabra and seats, a Gothic covered way opening out from the back. The last scene, an avenue leading to *Portia's* house, is a charming piece of moonlight painting. The costumes and customs are represented as existing about the year 1600, when Shakspeare wrote the play, the dresses being chiefly selected from a work by Cesare Vecellio, entitled "Degli Habiti Antichi e Moderni di diverse Parti del Mondo: in Venetin, 1590;" as well as from other sources to be found in the British Museum. The acting of Mr. Kean in this play is well known, but has never been so good, as it seems to us, as it is now. His scene with *Tubal*, when anger and sorrow, in respect of his daughter, struggle with the gratification with which he hears of *Antonio's* losses, is a grand piece of acting. Of Mrs. Kean's delivery of the appeal for mercy and the judgment, it is impossible to speak too highly. Her energy in the latter, and the subtlety of the device which strikes the mind even now, 250 years after it was written, and when every one knows it, bring down deservedly a thunder of applause, reserved as the audience of this theatre always is.

St. James's Theatre.—Thanks to Mr. Frederick Gye, who is recovering, we are most sincerely glad to hear, from the prostrating illness with which he has been afflicted, the public have an opportunity, at St. James's Theatre, to see again the greatest foreign tragic actress now living, Madame Ristori. She appeared as *Lady Macbeth* on Wednesday evening last. Accident prevented us from then attending, but we shall take an early opportunity to do so. There are to be but twelve performances.

GOTHIC INTERCOLUMNIATIONS.

THE term *order*, in its extended sense, has been considered to apply to the relative proportion between the height and width of the bays or compartments into which a building is divided. In Gothic art it has been used by some authors to denote the number of shafts forming the jamb of a door or window. I have observed in some of the best-proportioned examples in that school of art a feature in which these two definitions appear to be reconciled one with another rather remarkably; namely, in the proportion of the height of the piers, supporting the arches between the nave and aisles, to the distance between them.

If we consider the single shaft to represent the first or lowest order, *a*; the next above it will of course be the cluster of four equal shafts, *b*; then comes an intermediate or half order of four shafts, divided from each other by a large moulding and two hollows, *c*; the next order of eight shafts, and the next of twelve, *e*. Now we shall find in these orders the following proportions, of which I subjoin a table of examples, all of which have a pleasing effect; and wherever these proportions are widely departed from, the effect is weakness or heaviness, according to the excess or defect in the height of the shaft in proportion to the intercolumniation:—

Example.	Order.	Height.	Intercol.	Relative Proportion.
		Ft. In.	Ft. In.	
Wittersham, Kent ..	1, *a*	7 6	10 0	*c* 3 : 4
West Walton, Norfolk	1	10 0	13 9	
St. Nicholas, Colchester	2, *b*	11 4	11 4	Quadrate or 4 : 4
Chancel arch of do. .	2	15 6	15 6	
St. Leonard, Colchester	2	*c*12 0	12 0	
Bottisham, Cambridge.....	2½, *c*	15 6	12 7	Between 4 & 5 : 4
Tower Church, Ipswich	2½	17 9	*e*15 0	
Westminster Abbey, Nave	4, *e*	*c*27 0	*e*18 0	6 : 4

These proportions do not appear in the Perpendicular school of architecture, but only in the Early English and Decorated. I shall be much obliged to any of your correspondents who will point out other examples where these rules appear to have been followed.

W. SCARGILL.

NOTES ON TOWERS.

THE CENTRE TOWER OF LICHFIELD CATHEDRAL.

IN the *Builder* for April 17, page 260, it is stated, that "at Lichfield, the centre tower is beautifully proportioned externally, and would form a splendid lantern if it were open to the top; but it is now wholly lost to the interior of the church to accommodate bells."

Now, inasmuch as this note may possibly draw serious attention to a point of great importance, while Lichfield cathedral is undergoing extensive and well-advised alterations, I am induced in kindly feeling to offer some local explanation to your correspondent.

1. The proportions alluded to by him are, unfortunately, not, as originally intended, in strict keeping with all other parts of the fabric. For it is probable that Lichfield cathedral, as designed in the twelfth century, was intended to be symbolic of Christian faith; and, as part of this intent, was laid out, in all and each of its main proportions, with especial reference to the Christian mystical number eight; and that the great steeple, symbolic of the first great person of the Trinity, was perfect in this respect; perfect in its parts, and perfect as a whole. But, in consequence of the spire of this steeple having been battered down by cannon, during the civil wars of the seventeenth century, the top of the tower was variously damaged; and, in the so-called restoration of the steeple, the original proportions were altogether lost sight of; for the tower was reduced in height, and yet the whole steeple was built two feet higher than it had been of old. And, to heap error on error, stunted pinnacles were placed on the reduced tower.

From Ashmole's rude print in the first edition of Fuller's "Church History," and from other sources of information, it may be gathered, that the old tower stood as high above the high-pitched roof of the church as the present tower stands above the present roof; and that its pinnacles were built in due proportion to those of the west front.

How far it is possible to amend the errors committed here at a "restoration" may possibly be noticed by some of your correspondents.

2. The upper division of the centre tower of Lichfield Cathedral, it is true, is "wholly lost to the interior of the church, "but not to accommodate bells." The only bell hung here is the *Tintinnabulum*, which in our day is popularly known as the T'Anthony; although on the print just alluded to it is named the Coe-bell, in evident corruption of Go-bell. The S.W. or Jesus steeple, is that in which large bells are hung; and their effect upon a clock bears out the truth of "S.'s" remarks on clocks in bell-towers in general, for before railway time was known in "the ancient city of Lichfield," it was a popular local belief that something "serious" was sure to happen, if the cathedral clock and St. Mary's struck together. Each clock was in a bell-tower, and neither of them ever went right.

The lantern is lost to general view by the interposition of a spurious arch. The modern character of this arch, the ancient character of the lantern, and the exact position of an oak roof, are all plainly traceable. The work of the lantern, though plain, originally agreed with that of a most graceful triforium, north and south; and the unison of parts was further increased by the triforium arches, and certain windows of the transept being open to view externally, which are now variously concealed or blocked up.

3. Since the year 1839, many different opinions have been expressed about the best site for an organ. But unless I mistake the matter in reference only to the diffusion of sound, no site can be found good in Lichfield Cathedral, at a distance from the centre tower; whereas if the lantern and different arches and windows be opened, an excellent site may be obtained near this tower, as marked on a ground-plan in the year 1840.

In reference to the question of the diffusion of sound, we had a remarkable example here a few months ago. There was a meeting of choirs in the church, about 200 voices being employed on the occasion, to "swell the note of praise." But the organ was placed under the low arches of an aisle towards the north-east of the building, and the singers were drawn out like a file of soldiers, south of the instrument. The consequence of this was, that the war of sound from the "long-drawn" file was so far driven out of the church, southwards (and in a street south of the church perceptibly driven out), that the effect of the 200 voices was lost at the west end of the building. The gentlemen unconsciously wasted much of their "sweetness on the desert air;" for a small organ, well placed, and fifty voices from a suitable stage would have produced better effect than they did with a powerful organ and four times fifty voices.

J. R.

BUILT UP IN ISLINGTON.

SINCE the publication of my last letter in your valuable journal, the process of building up in Islington has been continued with as much perseverance as might have been expected during the late uncertain condition of monetary affairs; and notwithstanding the advance of the bricks and mortar has been slow, it has made some progress; and I find myself now enclosed in the heart of a large city, instead of breathing freely in a pleasant suburb. The vestiges of greenness have faded from my view, which is now composed of a monotonous and somewhat confined collection of red and blue roofs, dingy walls, and parched and hardened ground. I strive in vain to find pleasure in that harmony of colour which is said to exist in the most unpromising scenes of nature, and to call up other images in my mind to counteract the forms of decided ugliness which in all directions are visible; and it is difficult to describe the effect which uncongenial objects have in the tasteful eye. I might speculate upon the manner in which such a painter as the late J. M. W. Turner, or a sculptor delighting in beautiful forms, would vigorously cover all of the view from my window, except the peep of sky, if called on in such circumstances to create one of those things of beauty, which is to excite the admiration of many for years to come.

It is true that I might resort to the plan of concealing my prospect in the above manner. I might have my dwelling internally ornamented with choice pictures and other works of art; I might dull the glazing of the windows by diapers and other means; by frequent change procure a sort of artificial greenery from Covent-garden, and produce a rural effect by the help of an imprisoned sky-lark, thrush, or other feathered song-bird. But, in spite of all this, the external view would still haunt me as surely as would a deadly form, if covered with the richest and most glittering of mantles. Besides, we all look naturally to a window as a means of relief or change, and it would be well if those who have supervision of the building of either large or small neighbourhoods were to consider how much the prospect from a house has to do with its general comfort.

Together with the disappearance of the trees and fields, many interesting objects of natural history have vanished. In the space which is now covered by close streets, I have in the spring time seen the ground ploughed up and thickly occupied by crows, whose noise and eccentric tricks afforded much amusement. These sounds have given place to the voices of the milkman and costermonger. A crow or two may be occasionally seen now soaring at a great height, and as swiftly as possible, over the neighbourhood. Fifteen or sixteen years ago it was by no means uncommon for them to fly over here from the direction of the New River to Kensington-gardens.

In summer the cuckoo might be often heard in

the Copenhagen-fields; and hundreds of swallows skimmed about the banks of the canal: these birds although so familiar to many of the homes of England, have ceased to be visible, except for a few evenings at the close of autumn, when they seem to meet together and suddenly vanish; and it is worthy of remark that similar flocks used a few years ago to gather on the northern verge of Somers and Camden towns. They now no longer visit them, and probably those of the preceding winter may be the last to Islington, for the number was very small in comparison with other years. Such living things as remind one of the country are very rare. A robin redbreast gave a few chirrups at the approach of winter, but, in spite of encouragement, he did not long continue his visits.

AN ARTIST.

FATHER THAMES.

A CORRESPONDENT writes to the Lord Mayor as follows:—

"My Lord,—What is to be done? The stench from the Thames yesterday, even at high water, exceeded anything I have ever felt or noticed before. On leaving the Adelphi Pier, I was seized with vomiting, and I really expected that some injury would accrue to me. Can nothing be done (excepting speeches in Parliament) on the subject of this 'sewer evil?' When some dreadful calamity shall brand its pestilential form over the great metropolis, then shall we mourn the effects of our great negligence."

This is one of several letters which the Lord Mayor has received on this subject. His lordship has himself made a voyage to Westminster, and remarks that certainly no stench that he ever encountered was comparable with that which assailed the passengers on that occasion. "He knew that the nuisance was most abominable, and, he apprehended, most dangerous; but Parliamentary speeches having failed, how could it be expected that the remarks of a mere magistrate would have any effect." Notwithstanding the evidence of both eyes and nose, learned authorities say that Thames water is very wholesome. It however requires much faith to put trust in the remarks of the learned while taking the air either on the banks or on the bosom of this dingy river. I, in believing rather in matters which are clear to every observer, than in learned theories, hope that this question will be considered without the vision being obscured by the ideas of cost. It must be borne in mind that several years must elapse before any important works of drainage can be carried out; and it is to be hoped that those who have been instrumental in causing delay may not have to regret when an immediate remedy is needed that their efforts are without avail.

A COMMON-SENSE PASSENGER.

ENGINEERING AND OTHER WORKS ABROAD.

THE surveys for the Nemours section on the intended railway from Paris to Lyons, by the Bourbon province, are finished. Already, at Nemours, there are fresh arrivals every day of the necessary plant for the work, and on the 1st of June 6,000 men were to be put in gangs along the line. If this be carried out as promised the Nemours section will be attached to the principal line at the end of a year.

The immense station for the junction of the Southern and Mediterranean lines is perfectly finished, even to the last touch of paint. It was announced in Cette that from the 16th or 20th inst. the direct passage from one line to the other would have been open by rail; but the day is not yet fixed, and the communication is still made by omnibus through the town from one line to the other. The magnificent swing-bridge (of riveted plates) carrying the line of junction over the Bordigne navigable canal, has been lately submitted to its definitive test. Four locomotives, each 70 tons, were driven over the bridge, first coupled together, and afterwards two by two united, and running in opposite directions over it at a high speed. The result was very satisfactory, and the deflexion (scarcely perceptible) was only what one could expect from its natural elasticity and long span. Swinging on a central pier, the total length of the bridge is 56 mètres, and it thus opens and shuts both bays at once. The apprehensions as to the working of the bridge, on account of its enormous weight, were soon laid aside when it was seen that two men were sufficient to turn it round.

The critical situation of the iron trade in France is becoming more and more evident. "From information that we have received," says *L'Ancre*, "we perceive in all quarters, especially in the countries of Champagne, Comté, the Landes, the Charente, and the Rhône, a reduction of hands in the fabrication of iron, and some of the furnaces extinguished."

On the Central Belgian Railway, the works of the second section, Beaume to Ecaussines, are in active progress, and the line will be inaugurated on the 1st July next. Independently of the great importance of this line individually, it will also be the shortest route from Brussels to Paris. At a general meeting of the shareholders on the 30th ult. the directors' report gives the receipts of the portion opened last year (18th Sept. to 31st Dec.), 87,125 francs, and the expenses 55,757 francs.

On the Chimay Belgian Railway (*entre Sambre et Meuse*), the Eau-Blanche viaduct is terminated, and only 10,000 cubic mètres are required to complete the line from Mariemberg to Chimay. This first section, 16,200 mètres long, can be opened in the beginning of July next. The second section is the prolongation of the first to the French frontier. The French government has authorised the company to continue the line beyond the Moningnies Belgian station into the French territories, in order to facilitate the introduction of agricultural and industrial indispensables into those places where they are needed.

The works of the Chemin de Fer de l'Ouest, between Lisieux and Pont l'Evêque, advance rapidly, and to all appearance will be finished early in June.

The Northern Spanish Railway is in active progress: 7,376 mètres of earthworks were done, during the month of April, between Airla and Burgos. The line is ballasted for a length of 34,727 mètres. The masonry is in a forward state: nearly all the bridges have been terminated.

The Toledo line is finished, and ready for opening. On Ascension-day, the neighbouring population was treated to a trip to Aranjuez by rail. In a few days, as soon as some minor arrangements are completed, it will be ready for permanent service.

On the line from Lisbon to Santarem, the section of Virtudes to the Puerta Santa Ana has been opened to traffic. This is the first railway in circulation in Portugal. The portion open is only 6 kilomètres, the whole line being 95 kilomètres.

By order of the Minister of Commerce of Prussia, the directors of the Eastern Bamberg Railway have taken into their hands the administration of all the works of the Kreuz, Kustrin, and Frankfort Railways, in place of the Royal Commission, which has been dissolved.

Plans for the Biscay Railway are to be sent in next month. On their being approved of, the works will be commenced forthwith.

According to the *Moniteur du Puy de-Dome*, the commission appointed by the Minister of Public Works for the reception of that portion of railway between La Palisse and Roanne, set out from Paris by special train, 8 a.m. on the 19th of May, and arrived at Palisse at 4 p.m. and Roanne at 7 p.m. The return journey, between Roanne and La Palisse, was accomplished in 2½ hours. The works having been examined, and reported on favourably, there is nothing to prevent the line being open as soon as the necessary formalities are complied with.

The Paris and Cherbourg Railway is to be opened for public traffic at the end of next month. The directors were to proceed there on the 29th, and goods traffic was to commence on the 30th of May. This line, perhaps the most important western line in France, has already been for some time completed to Caen (239 kilomètres), and the completion to Cherbourg, 121 kilomètres further, will be, as we have before stated, inaugurated by a series of fêtes on that portion of the Normandy coast.

The Governor of Algeria has paid a visit lately to the railway works. He went along the line from Maison-Carrée to Bouffarick, and took minute notes of the state of the works. The local newspaper assures us that the effect of the thousands of army shovels is truly miraculous. Independently of the soldiers, there are 771 prisoners from the Algiers division, who work on the gangs from Birtouta to Bouffarick: other batches of prisoners from Oran and Constantine are expected. In all, the effective will be about 1,000 prisoners, in addition to the army, the exact number of which has not transpired.

In France, from April 1, 1857, to March 31, 1858, 1,432 kilomètres of railway were opened, classified thus:—April, 371 kilomètres; May, 186; June, 105; July, 116; August, 62; September, 240; October, 60; December, 30; February, 1858, 208; March, 1858, 54.

In 1857, it had 6,275 kilomètres, and on March 31, 1858, 7,707 kilomètres in circulation.

According to the *Messager de Bayonne*, the Ebro Canal works progress with astonishing rapidity. Already steamers can ascend from Mequinenza to San Carlos, and facilitate greatly the transport of goods, and the development of the interior. The company, in order to provide for the storage of increasing traffic, have constructed immense wine cellars and grain stores. The works are in a good condition throughout the line.

THE DEBATABLE LANDS OF THE METROPOLIS.

THE following is one of the instances which are so often occurring of the difficulties which arise on the borders of districts, and helps to show the necessity which exists for care in those quarters:*—

At a recent meeting of the City Commissioners of Sewers, Deputy Barnard stated that he wished the inspector of sewers (Mr. Santler, sen.), to be called, in order that that officer might explain the state of a drain at the rear of the Ram Inn-yard, Smithfield, which had been broken in, and in consequence of which the rats issued from the orifice in thousands, to the annoyance of the inhabitants of the neighbourhood.

Mr. Santler said the drain was not in the jurisdiction of the City—it was in the county of Middlesex, so that the Commissioners had no power to interfere.

Deputy Barnard.—The Ram Inn is in the City, surely?

The Inspector.—Yes, sir, it is; but the yard where the drain lies is not.

After some little further conversation, the court decided to refer the matter to the engineer to report upon at an early court.

PRESBYTERIAN SEMINARY, ILLINOIS, U.S.A.

THAT our readers may see what is doing in the New World, we have engraved a perspective view and the principal floor-plan of a building which is about to be erected at a place called Hyde-park, in the suburbs of Chicago, which building is to be used as a *theological seminary* (old school Presbyterian), and is to be called the "Presbyterian Theological Seminary of the North-West." The site for this building is one of the finest in this section of the country, it being in a rural district south of the city, and within some twenty rods of Lake Michigan, and one which commands a fine view not only of the lake, but of the city and surrounding country. The architect is Mr. G. P. Randall. The leading features of the interior will be learnt from an inspection of the plan. The building will have the lake on the east, the Michigan and Illinois Central Railways on the west (with a street between the building and railways), and a street at each end. Across the street north is a beautiful park, which is immediately on the lake shore, and is covered over with trees. The end of the building fronting this park is arranged for the professors' residences. At the opposite end is the chapel and library. The stories above the one shown are to be used for students' rooms, and are divided and arranged similar to those in the wings on the principal floor. The basement has a kitchen, dining-room, laundry, servants' rooms, &c. and all the conveniences of a first-class hotel, and will accommodate about 200 students. The building is to be warmed by steam throughout. The structure is to be built of a limestone of an excellent texture, which in colour resembles the Caen stone, only that it is whiter, finer, and much harder.

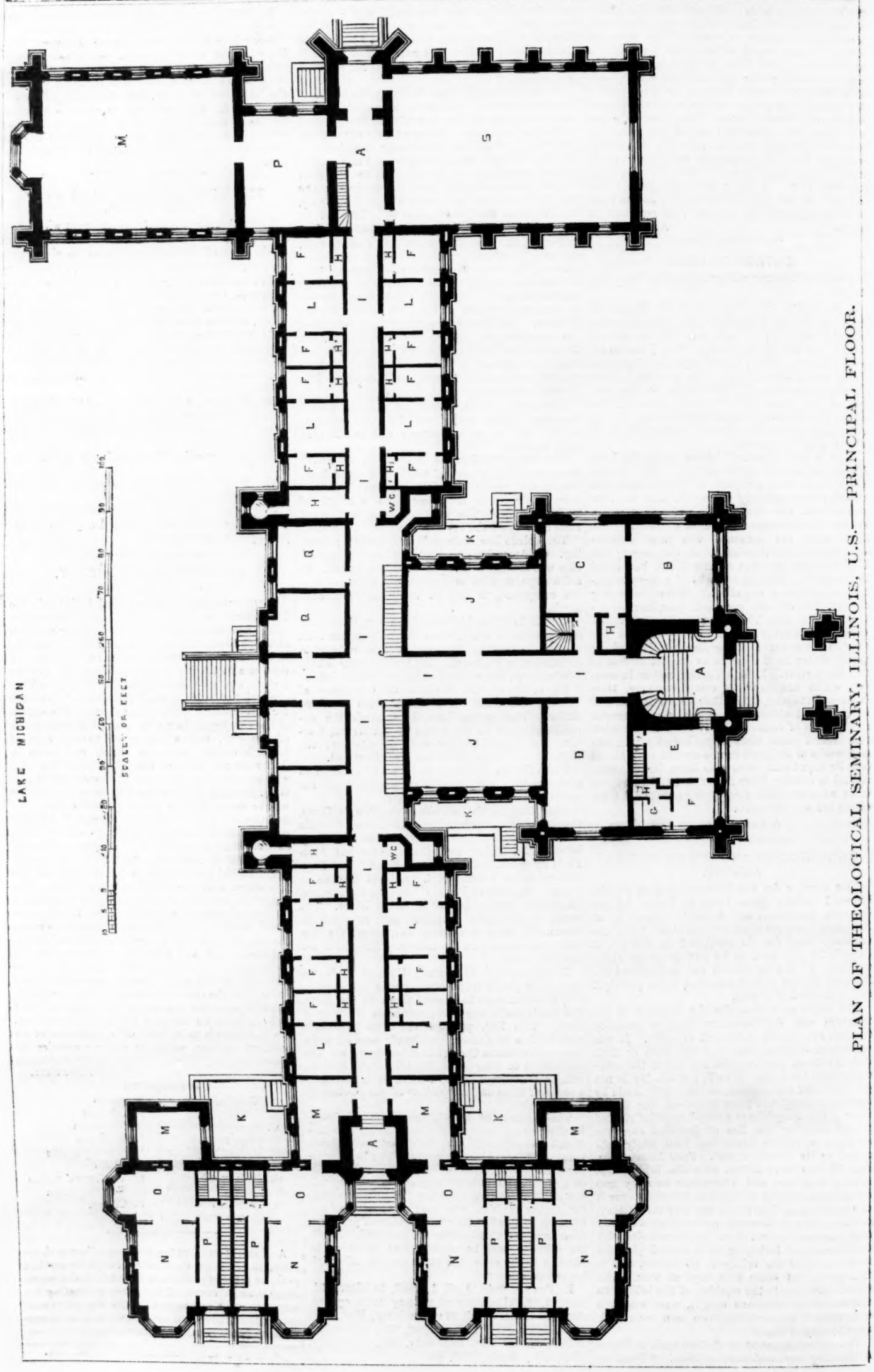
G. P. RANDALL.

REFERENCES.

A. Vestibules
B. Office
C. Reception-room
D. Class-room
E. Matron's parlour
F. Chambers
G. Bath-room
H. Closets
I. Corridors
J. Class-rooms
K. Areas
L. Studies
M. Libraries
N. Parlours
O. Sitting-rooms
P. Halls
Q. Professors' rooms
R. Reading-room
S. Chapel

A PARK FOR HULL.—Some gentlemen interested in obtaining the Citadel of Hull for a public park, or place of recreation, have adopted a requisition, now in course of signature, requesting the mayor to call a public meeting for the purpose of taking the matter into consideration, and memorialising the Government authorities.

* See paper on the Debatable Lands, p. 366, *ante*.



PLAN OF THEOLOGICAL SEMINARY, ILLINOIS, U.S.—PRINCIPAL FLOOR.

PLAN OF THEOLOGICAL SEMINARY, ILLINOIS, U.S.—PRINCIPAL FLOOR.

PRESBYTERIAN THEOLOGICAL SEMINARY OF THE NORTH-WEST, HYDE-PARK, ILLINOIS, U.S.—MR. G. P. RANDALL, ARCHITECT.

DISTRICT SURVEYORS AND THE METROPOLITAN BOARD OF WORKS.

St. George's, Hanover-square.—Mr. Edward M. Foxhall has just now signified to the Metropolitan Board of Works, his desire to resign his district from the 1st day of July next, or as soon after as may be their pleasure. An increase in fortune, under the will of the late Sir John Soane, we believe, is the cause. Mr. Foxhall will carry with him the warm regard of all his former colleagues.

Marylebone.—At a meeting of the Board on Friday, June 4th, the recommendation of the committee in respect of a building on the forecourt of 197, Marylebone-road (see p. 381, *ante*), was discussed. Mr. Jennings explained at some length that he had done everything in his power that could be wisely attempted in the face of decisions come to by magistrates. Mr. F. Doulton and Mr. Ware protested against the report made by the committee, and it was ultimately withdrawn. It is to be hoped that the committee will be more cautious on a future occasion how they defame an individual before giving him an opportunity to be heard.

THE WESTMINSTER QUARTER BELLS.

THE new hour or largest bell for the New Palace of Westminster having come a little flat of F, the quarter bells which were cast some four months since by John Warner and Sons, of the Crescent Foundry, London, and which have been lying there until the large bell should be recast, have within the last few days been tuned to accord with it; and having been inspected and approved by Mr. Denison and Mr. Taylor, Messrs. Warner have received instructions from the First Commissioner of Public Works to deliver them at the foot of the Clock Tower at Westminster, where preparations are making for suspending them; so that in a few days the public will have an opportunity of judging of their merit previous to their being placed in the Clock Tower. The sizes, weights, and notes, are as under:—

Diam. at Mouth.		Weight. cwt.	q.	lb.	Note.
1st quarter,	45 in. ...	21	0	0	flat of A
2nd "	48 in. ...	26	0	0	flat of G
3rd "	54 in. ...	35	0	0	flat of F
4th "	72 in.	77	3	24	flat of C

NOTES FROM IRELAND.

THE committee of the Protestant Orphan Hall, Limerick (previously illustrated by us), intend completing the building, and are receiving tenders for that purpose. The society was founded in the year 1833, and its annual income is upwards of 2,000*l*. Mr. W. Fogerty is the architect.

A new Roman Catholic church is to be erected at Thomastown.

The new church at Lisadell has been consecrated by the Bishop of Elphin. The building adjoins the site of the old church, which has been converted into a school-room. Its length is about 100 feet, and breadth about 40 feet. In the chancel is a memorial window of stained glass, with this inscription,—"Erected by a grateful tenantry and friends to the memory of Lady Caroline Susan Gore Booth, to perpetuate their feeling of esteem and admiration entertained for her many virtues. Died 17th January, 1858." The window was stained and designed by Warrington and Son, London, at a cost of 190*l*. At the opposite end of the church is another small stained glass window, dedicated to the Rev. Mr. Jeffert, incumbent. The internal arrangements of the church are said to be excellent, and to ensure comfort. Cost, upwards of 2,000*l*. besides private subscriptions for internal fittings. The bell alone cost 55*l*. The foundation-stone was laid on the 17th of June, 1856.

It is said that the Methodists in the United States of America purpose raising 100,000 dollars to build a college for their society in Ireland.

New iron bridges, dock-gates, and other works are to be erected at the Custom House Docks, Dublin, according to plans, &c. by the architect to the Commissioners of Public Works.

The additions and alterations to Kilmainham gaol, the premiums for plans for which Mr. McCurdy, architect, obtained in competition, are to be proceeded with forthwith.

We are told it is in contemplation by a few to do honour to the memory of the late John O'Connell, by the erection of a monument or other memorial. The proposed Goldsmith Testimonial, so eagerly advocated for a time, seems to be at present in a state of abeyance. Let us hope that the work may be more architecturally successful than "The Moore Testimonial."

Much discussion is going forward at the meetings of the Dublin corporation relative to curtailing the space in front of Trinity College, and increasing the public way thereby. The Board offers 10 feet in the centre, and 2 feet 10 inches at the sides. Some maintain that 15 feet in the centre is necessary, and that the present railing should be replaced by one of more ornamental character; but it would appear at present as if nothing was really intended to be done, for the new pavement is being proceeded with at a higher level, and no change made in the boundary line. A correspondent suggests that all the objects could be obtained by taking down the railing, substituting dwarf piers connected by chains, 1 foot 6 inches high, or thereabouts, to define the boundary, as at present; flagging on level with pathway, the present gravelled space, and introducing two *jets d'eau*, which would appropriately ornament this most central part of the Irish metropolis.

The directors of the National Bank are receiving tenders for the erection of a banking-house at Dundalk. Mr. Caldbeck, architect.

Operations have been commenced in the pulling-down of that time-honoured, but certainly not very architectural structure, "Bloody Bridge," Dublin.

The new terminus of the Dublin and Wicklow Railway, at Harcourt-street, progresses, but will be much less unpretending in appearance and comprehensive in arrangements, than any of those attached to the chief lines branching from Dublin. Mr. Wilkinson is the architect, and (we believe) Mr. Dargan the contractor.

AMERICAN NOTES.

THE new capital of Nebraska is to be called Neapolis. It is to be located in some central situation, and 320 acres of land will be laid out in city lots, and sold by auction to defray building expenses.

A bridge 100 feet long, with a train running at the rate of 25 miles an hour, broke down on the Lafayette and Indianopolis railroad, and the train went through to the bed of the creek. Three persons only were killed, and the passengers generally escaped without material injury.

Another bridge over the Sanquoit creek, on the New York Central Railroad, gave way, and a number of passengers were killed. The timbers were found to be of rotten bastard elm. It is in contemplation to appoint bridge inspectors for the different railways throughout the States.

In Diamond Bluff, Trenton, Saratoga, and Maiden Rock, many new buildings are going up. In the adjoining country parts, substantial farm offices are being put up in goodly numbers, and the farms fenced and cultivated.

In demolishing the walls of old Gosenhoppen Church, Penn., erected 1744, the corner-stone was found at the north-west corner of the building, and contained two small coins, one dated 1695, and the other 1652; the one supposed to be English, the other a German coin. A small flask of tasteless liquor and black mouldy parchment were likewise discovered.

A handsome brick edifice for a Congregational church was not long since erected at Galesburgh, and cost upwards of 20,000 dollars, but it, as also the new Catholic church, a large engine-house of the Northern Cross Railway Company, and several other buildings, were reduced to rubbish by a dreadful storm.

An experiment to ascertain the amount of oxygen necessary to support life was tried at Chicago, by placing 600 persons in a hall of one of the hotels, the doors and windows being closed. At the end of the third half-hour, it was deemed unsafe to continue the experiment longer, and the fact was considered established that, under the circumstances, life would be extinct in ninety-five minutes.

The building of the Capitol at Madison is to go on.

CHELSEA.

ON Tuesday last, the 8th inst. the stone of the new church of St. Simon was laid by John Ashley Warre, esq. M.P. of Lowndes-square, before a large assembly, consisting of many of the inhabitants and the surrounding clergy. A printed service, arranged and conducted by the Rev. Richard Burgess, was read, with hymns selected for the occasion sung by the children and congregation; and in the address which was delivered, it was stated that 5,000*l*. had been contributed by two individuals, and that it was proposed to expend in the church and parsonage-house 7,000*l*.; that a site had been purchased adjoining for the schools, which it was hoped would quickly follow. The minister appointed to the church is the Rev. W. Scott Moncrieff. The church will accommodate 900 persons. The architect is Mr. Joseph Peacock; and the contractor, Mr. White. It is to be built of Bath stone and Kentish rag, with coloured bricks for the interior; and the west front, in Moore-street, will have a double bell-gable.

PRIVILEGES TO BE RETAINED SHOULD NOT BE ABUSED.

MR. EDITOR,—You have more than once worthily urged upon the owners of fine sites, ancient houses, and instructive collections the value of liberality, and pleaded for the occasional enjoyment of them by the public: you quoted Willis, who says:—"To fence out a genial eye from any corner of the earth which Nature has lovingly touched with her pencil, which never repeats itself,—to shut up a glen or a waterfall for one man's exclusive knowing or enjoying,—to lock up trees and glades, shady paths and haunts among rivulets, would be an embezzlement by one man of God's gift to all." And I fully agree in the object you had in view. But if the public have a right to look for such privileges, if the public think them desirable, they are bound not merely not to abuse them, but to show proper consideration for those who kindly grant them. I was staying a few days ago at a delicious place in Sussex, midway between London and Brighton, where Nature has combined with an affluent hand rocks, wood, water, and flowers into a glorious whole, to which time and taste are adding charms. The owner and occupier of the place gives glad permission to all who desire to see it, though his own hourly use of the grounds and his horror of lobster-shells, noise, and broken bottles of course prevent the intrusion of unlimited picnics. Well, permission to view the place was sought for a party, including, it was said, officers of Her Majesty's 6th Dragoons, the Enniskellins, and permission was given.

Not to make a long story, I say nothing of the trails across the grass just ready for the scythe, or the cutting of initials, or of the van full of hampers accidentally introduced; but what I would say is, that when the "Visitors' Book" sent out to the party through the individual who had applied for permission was returned, it was found disfigured with ribaldry, and some had signed themselves "Blacking-bottles," "Grummo," "Cautious Baby," and "Sheep." Dogberry told another to write him down "An Ass:" these individuals preferred doing it each for himself. At the foot of the insolent disfigurement, with another name, "Young," was that of "Charles Carpenter, Brighton,"—no relation, I should think, of *our* Carpenter, poor fellow, or he would not have permitted such impertinence and wilful damage.

I write this letter without the knowledge of the excellent owner of the estate, and solely in the interest of the public, who are vitally concerned in seeing that the privileges kindly accorded by individuals, in opposition often to their own convenience, are not abused, as the result in that case would necessarily be the withdrawal of those privileges. If any of the *gentlemen* who exhibited their knowledge of slang and their ignorance of decent behaviour on the occasion in question desire the name of your correspondent, you have my full permission to give it to them, but I hope they already feel sufficiently ashamed of themselves not to need further exposure.

A LOVER OF NATURE.

GOTHIC ARCHITECTURE, AND ITS REVIVAL FOR ECCLESIASTICAL PURPOSES.

SIR,—When I state that I am not an architect, perhaps I shall be accused of ignorance and presumption in attempting to convey any opinion to professional readers; but, on the other hand, I hope I may claim exemption from prejudice.

The sanitary knowledge which modern science has communicated to us teaches us that the health and comfort of the inhabitants of a building, whether for permanent or temporary purposes, are primary considerations. We reckon light, ventilation, coolness in summer and heat in winter, to be indispensable requisites. Are these requisites properly attended to in our modern Gothic edifices? I fear they are not.

This return of hot weather reminds me that on Sunday, the 28th June of last year, I was present at the Surrey Gardens Music-hall, for the purpose of hearing Mr. Spurgeon. The heat was intense outside the building. 11,000 persons were said to be present, and the papers declared that it was the hottest day that had been known for nearly forty years. Although, as I have said, the heat was intense outside the building, inside everything wore the appearance of light and coolness. The numerous windows were opened, air was freely admitted everywhere, and in all this vast assemblage not one case of fainting occurred. Can the builders of our modern Mediæval churches produce the same beneficial results?

Let us turn to another picture. I am in the habit of attending a modern Gothic church in the suburbs of London, which has just sprung into fame from the ministration of a well-known popular preacher—deservedly popular if exemption from sectarian teaching be a legitimate passport to favour. This building is, I presume, artistically correct in its Gothic pretensions. The windows are long, but narrow and gloomy, with the approved trellice work of lead, which denotes the infancy of the glazing art. The windows begin to spring at a height of some 10 or 12 feet from the ground, leaving the lower part a mass of dead wall, unrelieved by either light or ventilation. Thus this portion becomes a kind of cellar, or vault, cold and cheerless in winter, and stifling in the summer.

The external air rushes with the violence of a tornado through the western door when opened at the backs of the congregation.

The consequences of this non-sanitary and uncomfortable construction are, that cases of fainting are by no means uncommon in this church. I never attend with my wife in this hot weather without having before my mind's eye the prospect of being obliged to remove her from the church—perhaps in a half-senseless state.

I am no enemy to Gothic architecture: this form is associated with our earliest memories of the Established Church. Cannot we avail ourselves of its benefits and reject its disadvantages? Is it wisdom, or folly, to copy all the defects, such as the little leaded panes of glass, which are in truth errors exploded in all other buildings

by superior knowledge? If we preserve the external form of Gothic windows, for instance, cannot they be large, extending nearly to the ground, and filled in with panes of glass of a large size?

To copy all defects slavishly in a revival of ancient external forms seems to me the most egregious absurdity. As well might we discard railways and return to pack-horses and saddles. P.

LAW NOTES.

Infringement of Patent.—Publication of an Invention.—Mr. Newall invented a machine for letting out telegraph wire. This machine had a truncated cone, round which the wire was wound, and from which it was paid off, and there were outside supports for the coil of wire, as also some rings, which were used for guiding the wire and preventing it from flying out. Messrs. Elliott and Glass subsequently produced a machine for the same purpose, which only differed from that of Mr. Newall in having a cylinder with a domed top instead of a cone. To an action for infringement of patent it was answered that the first specification did not state the use of rings, and also that there had been such a publication before taking out the patent as prevented the patentee from claiming legal protection. To this the plaintiff replied that the rings were not the substance of the invention, and that the publication was an experiment,—the laying down of a cable in the deep sea, in accordance with a contract with Government; and it was not ascertained before that experiment whether the invention was useful or not. The Court of Common Pleas has held that the provisional specifications need not contain all minute particulars, but only a general description, and that publication, even with profit, if still only experimental, is not necessarily a gift of the invention to the public. If, however, the utility of the invention had been already proved, the public use of it for profit before patent obtained would not be protected. The Court decided that Mr. Newall was entitled to judgment for infringement by defendants.—*Newall* v. *Elliott and Glass.*

Canal.—Liability to keep Locks in Repair.—A lease for fourteen years, from 1848, was made to a person named Chapple, of the Alvingham Canal, and this lease is now vested in the Great Northern Railway Company. The lessors are certain commissioners, who derive their powers from an Act of 1768, for improving and maintaining the navigation from the Humber to Alvingham, and thence to Louth, in Lincolnshire. The barge of a person named Walker entered the canal, and one of the locks fell in, so that the barge was obliged to remain. The owner brought an action against the commissioners' clerks, but he did not show that they had power to take possession and repair; nor did he show that he was not aware of the defective condition of the locks before he entered the canal, and there were also other technical points of pleading relied upon. The Court of Exchequer held (Baron Martin dissenting), that the action against the canal commissioners' clerks could not under such circumstances succeed.—*Walker* v. *Goe and Others.*

Parish Boundaries: Poor-rate.—An occupier of lands in two adjoining parishes was rated for his lands, 595 acres, in both parishes, Hethe and Colesford, in Oxfordshire. The old boundaries were removed, and the sessions could not decide where the boundary between the two parishes was. It was, however, ascertained that 195 acres were in Hethe, and the rate was confirmed at Sessions, for that portion. On appeal it was argued for the occupier, that there must be a precise description of the exact situation of assessed lands, and that until the boundaries are fixed, he ought not to be rated to either parish. The Court of Queen's Bench has, however, held that the rate as to the 195 acres is correct, and that the parish officers were not bound to point out the exact lands rated, provided they were satisfied that 195 acres were within the parish named.—*The Queen* v. *Woods.*

Poor-laws: Auditor of Accounts.—In the parish of St. Pancras, directors of the poor were chosen by the vestry, who appointed officers to act under the directors, and make the poor-rates. The Poor-law Board issued an order to the directors, churchwardens, and overseers, to appoint a local auditor of accounts, but the order was not obeyed. An order was then issued for the directors to make the appointment, but they refused on the grounds that the Poor-law Board had not the power to make the order, and that the directors were not the parties to whom it should be addressed, since the Metropolis Local Management Act came into operation. The Court of Queen's Bench has held that the Poor-law Board has the power to make the order, and that the directors are the proper parties to carry it into execution, as they are virtually the overseers of the parish.—*The Queen* v. *Stockton and Others.*

Bankruptcy: Proceedings of Wife.—The wife of a trader called a meeting of his creditors at the house of another person, and it has been held that this act did not bind him in the absence of proof that the circulars were issued by his authority. As, however, it was proved that he absented himself from home for several days, and left no directions for creditors, he was held to have committed an act of bankruptcy.—*Re M'Clelland.*

PROVINCIAL NEWS.

Reading.—Measures are being adopted for rebuilding the town-hall in connection with a county police station. A design by Mr. J. B. Clacy, the county surveyor, is under consideration: it is in the Elizabethan style. It is proposed to raise a sum of 650*l.*, according to the *Mercury*, for the purpose of purchasing a plot of private garden-ground requisite for the preservation of the entire site of the abbey ruins and the enlargement of the Reading pleasure-gardens.

Bilston.—The St. Leonard's new national schools, with master's house, &c., situate alongside the Great Western railway, and fronting Arthur-street, are progressing towards completion. The boys' and girls' school-room will be 90 feet by 30 feet, with a class-room to each school. The infants' school is 48 feet by 20 feet. The works are being executed from the designs of Messrs. Briggs and Everal, of Birmingham, architects, by Mr. Stephen Samson, builder.

Hanley.—The national school-room attached to the Hope parish, Hanley, has been opened. The building has been erected by Mr. J. Jones, of Hanley, from designs furnished by Messrs. Ward and Son, architects. Only one-half of the entire design has at present been carried out. The style is in general keeping with the church, which the school adjoins, and which is Norman. It is built of white bricks with stone dressings, and is relieved occasionally by blue brick patterns. The portion at present raised consists of a room 44 feet long by 24 feet wide, with class-room 14 feet by 12 feet, porch entrance, and a lavatory. The interior has an open wood-work roof, and is lighted after dark by a sunlight, which assists the ventilation.

Topsham.—The town of Topsham kept holiday on Saturday week, on the occasion of the opening of a new dry dock, capable of accommodating a vessel of a thousand tons burthen. Hitherto the want of such a convenience at the port of Exeter has been much felt. Mr. G. Cumming, of Exeter, was the engineer; and Mr. Barnes, of London, was the contractor.

Swansea.—The erection of the long-projected docks at Swansea is progressing. The proposed extension is marked out along the coast. A sea-wall is to be constructed on the margin of the bay, forming an esplanade of great length, and building operations are also actively carried on in the neighbourhood. The construction of the half-tide basin of the float is progressing.

Thurstaston (Cheshire).—The foundation-stone of new schools, in connection with Thurstaston church, and erected at the sole expense of Mr. Joseph Hogan, of Dawpool, was laid on the 9th of June by the wife of the Rev. Philip Robin, of Barnston. The building will be erected from designs by Mr. W. Scott, architect.

Liverpool.—New business premises have been erected in Church-street, opposite St. Peter's church, for the Liverpool branch of Messrs. Elkington and Co.'s business. The style is Lombardo-Venetian, from a design furnished by Mr. Hornblower, architect. In the basement story, as described in the *Journal*, the chief ingredient of construction has been grey granite, from Dalbeatie, in Dumfriesshire, employed in alternate courses of polished and rough-picked surfaces, intermingled, at symmetrical points, with warm-coloured sandstone. The second story is altogether of Welsh sandstone, as is also the third and superincumbent stories; but here the granite element has been continued, by the introduction of tall, slender shafts of grey granite, reaching from the base of the second story up to the lofty cornice, nearly 60 feet from the ground. These shafts are bound to the front by bands of sandstone. The cornice projects boldly forward. The shop, which is just perceptibly raised above the street, is 36 feet long by 35 feet wide, and 20 feet high. The principal show-saloon, on the first landing of a stair directly opposite the doorway, is a hall 100 feet long by 35 feet wide, and 32 feet high. There is also an upper show-room of the same dimensions. The shop and two show-rooms are heated by a steam-warming apparatus on a plan suggested by Mr. Mason, one of the partners of the firm of Elkington, Mason, and Co. and executed by Mr. Alderman Bennett. The plan consists of a large wrought-iron steam-boiler, with branches to the several apartments to be warmed, the steam being conducted by means of Mather and Platt's patent steam-valves. The escape of air from the pipes is adjusted by the application of Travis and Carstelle's patent steam-trap. The condensed steam returns again to the boiler. The general contract for the work was taken by Messrs. Kilpin and Montgomery. The plumber's work was executed by Mr. James Crellin. The heating apparatus, and all the ironmongery furnishings and fittings, have been supplied by Mr. Alderman Bennett. Mr. Shaw, of Brownlow-hill, executed the chief portions of the stone carving.

Market Harborough.—The Market Harborough Corn Exchange was opened on the 1st of June. The building, the front of which has been adapted from a private residence, was erected under the superintendence of Mr. Goddard, of Leicester, architect, and is simple and unpretending in its appearance. On each side of the principal entrance on the ground-floor are rooms which it is intended to let for offices. Above is a room which extends along the whole width of the front, and intended for a reading-room. There are also other rooms on this floor, for committee meetings, &c. The room intended for the Corn Exchange is 66 feet long by 33 feet in width, and has an open-framed roof, principally of glass. The place is ventilated by traps opening to the external air, ranged along one side and the end. At the rear are several waiting-rooms and out-offices, and the building is cellared throughout.

Accrington.—The new reservoir, which is now being constructed by the Accrington Gas and Water-works Company for the supply of Accrington and its neighbourhood with water, is in progress. The reservoir will contain 138,000,000 gallons of water: it is 660 feet broad, about 1,000 feet long, and its average depth will be 33 feet.

Shields.—The Building Committee of Sherburn Hospital have agreed upon a plan furnished by Mr. Austin, of Newcastle, for a new hospital for new inmates. The building will be erected immediately behind the range of low houses at the bottom of the square, now occupied by the hospital brethren. The new building will be two stories high, and have a stone frontage.

Blackburn.—The Infirmary Committee met on Tuesday to open and decide upon the tenders for the erection of the proposed building. There were seven tenders, and that by Mr. B. Abbott, and J. Hacking, of King-street, was accepted, subject to their finding two sureties for the due performance of the work.

Headington-hill (Oxford).—During the past autumn the works in progress at Mr. Morrell's new residence on Headington-hill have been visible for some distance on every side of Oxford. The building is a first-class mansion, in the Italian style. The architect was Mr. Thomas, of London, who has been engaged on the decorations of the Houses of Parliament for some years; and the building has been erected by Messrs. Joseph Castle and Co. of Oxford. The art of the landscape gardener, and the natural advantages, says the *Oxford Herald*, have here produced glimpses and views which are unrivalled, especially the views in the direction of Oxford.

MEMORIALS AND MONUMENTS.

Saffron Walden.—A large stained-glass window, of four lights and tracery, has been put into the south side of the parochial church, near the chancel, as a memorial to the late Mr. Martin Nockolds, the subjects representing "The Good Shepherd,"—"The Prodigal Son,"—"The Good Samaritan,"—and "The Sower." These are on a flowered quarry back-ground, with borders and coloured tracery above, with symbolical foliage and emblems.

Wisbech.—A memorial window to the late Rev. H. Fardell, vicar of Wisbech, has been placed on the north side of the chancel of the parish church here. The subject, "The Good Samaritan," is in six divisions, and was executed by Mr. Wailes.

Gloucester.—It is proposed to erect a monument to the memory of Bishop Hooper, at Gloucester, on the spot where he was burnt. The amount required, according to the *Bristol Mirror*, is estimated at 200*l.*

Ironbridge.—Proceedings are being taken for the collection of funds for the erection of a school, as a memorial of the late Rev. H. Fletcher, the Wesleyan, in close proximity to the spot where he erected his first school. The design for the building which has been lithographed, is by Mr. James Wilson, of Bath.

Halifax.—It has been decided by the committee of management that the statue to Mr. Frank Crossley, the member for Halifax, shall be of marble. The cost of the sculpture will be met by a public subscription, towards which about 1,000*l.* have been already received. The statue will represent Mr. Crossley, and is designed as a tribute by the inhabitants of Halifax for his gift of the People's Park. The figure will be erected in the saloon on the terrace in the park. Three artists, Messrs. MacDowall, Durham, and Milnes, were selected, and they will be requested to supply models. A premium of fifteen guineas will be awarded to each of the two unsuccessful candidates.

CHURCH BUILDING NEWS.

Crawley.—A new Independent chapel is now in course of erection at Crawley. Mr. Ockenden is the builder. The edifice is in the Gothic style, erected on a site near the railway station, and capable of accommodating three hundred persons. The cost of erection will be about 500*l.* The chief stone has just been laid, but the building is pretty well advanced.

Moreton.—The parish church of Moreton-in-the-Marsh is undergoing alterations, extensions, and improvements, to adapt it to the requirements of an increasing population, under the direction of Messrs. Poulton and Woodman, of Reading, architects. The expense is to be defrayed by voluntary subscriptions.

Belper.—The ceremony of laying the foundation stone of the chapels for the new cemetery at Belper was performed by Mr. Thomas Wm. Evans, M.P. on Whit Tuesday, when nearly seven thousand persons were present. The chapels are semi-detached, having robing-rooms, and connected with a carriage archway, with tower and spire, 140 feet high. They are in the Geometric style of Pointed architecture. A lodge, similar in character, is to be erected at the extremity of the land, contiguous to the turnpike road, leading from Belper, having entrance gates and ornamental boundary wall. The architect is Mr. Edward Holmes, and the builder Mr. William Freeman, of Belper.

Hereford.—The work of restoring the cathedral of Hereford is being pursued. The soil is to be removed from the external base of the north transept walls, the masonry made good, and the excavations to be filled with concrete. Men are engaged in scraping and cleaning the groining, pillars, and mouldings of the same transept. Mr. Scott is the architect.

Farlow (near Cleobury Mortimer).—The new church of St. Giles, which has lately been erected in this parish from a design by Mr. R. Griffiths, of Quatford, architect, has been consecrated by the Bishop of Hereford. Funds for the building were raised by private subscriptions, and a grant from the Diocesan Society. A considerable sum was given by Mr. B. Botfield, M.P. who also gave the site as well as paid the expenses of alteration in the plans, as it was originally intended to raise the new church where the old one formerly stood, namely, at the base of the hill. The church is built in the Early English style of architecture, and consists of a nave, chancel, south porch, and vestry. It is built of local stone, the walls in hammer-dressed work, with facings of tooled stone. The west end is finished with a bell-cote for two bells, and the nave and chancel gables terminate with moulded stone crosses. The old Norman entrance archway has been preserved from the old church and re-erected as the entrance to the new church. The roofs are covered with Broseley tiles. In the interior the nave is separated from the chancel by a stone arch. The roofs are of open timber work, having arched trusses resting in moulded stone corbels, and stained and varnished throughout. In the chancel there is a communion-rail of wood, supported by iron standards. The chancel, aisles, and porch are laid with coloured tiles, and the floorings of the seats are of wood. The seats are wholly open, and formed of wood stained and varnished. The sittings are capable of accommodating 210 persons. In the nave fronting the entrance is the ancient font from the old church. The churchyard covers an area of about three-quarters of an acre, and is surrounded by a stone wall surmounted by a coping. The churchyard is approached by an ornamental gateway.

Aberavon.—The foundation-stone of Aberavon New Church was laid on Monday in last week, by Mrs. Griffith Llewellyn, of Baglan Hall. There is still a great deficiency in the funds required to complete this edifice. It is expected it will be opened early next year.

COMPETITIONS.

Cambridge Stations.—Mr. Eliot Yorke, M.P. the chairman, has written a letter to the *Cambridge Chronicle*, admitting that his plan, to which the premium was awarded (as already stated, p. 393), was not placed before the magistrates until after the date named, and yet asserting, with singular bravery, that "the terms of the advertisement will be strictly carried out." It has not been denied that the conditions said the cost should not exceed 800*l.* and that the selected design is estimated at more than 1,000*l.*; and yet, "the terms of the advertisement will be strictly carried out." Strange obliquity of vision!

The Hertford Corn Exchange.—Last week, an adjourned meeting of the town-council was held, for the purpose of considering the plans sent in for altering and improving the Corn Exchange. Three of the plans were rejected altogether, on account of the estimates accompanying them exceeding 1,000*l.* it being considered unfair to allow them to be brought into competition with plans which had been prepared in accordance with the amount specified in the advertisement, "about 800*l.*" A ballot was then taken for selecting the seven best, after which the council adjourned till Tuesday morning, when they further considered the plans.

Sardinian Prisons.—A correspondent says,—"There were nine English competitors for the Sardinian prisons. The plans for the two at Turin, for which it is reported Messrs. J. P. Jones and Barber have attained the first prize, are of a peculiar kind, and adapted to the wants of a country where revolution is possible. There is no possibility of the prisoners arranging an outbreak, and 100 men could hold the building for a considerable time against twenty times their number. The plan of the Genoa prison, for which the same architects are awarded the third premium, is somewhat on the principle of that at Pentonville. Mr. Smith, of Adam-street, Adelphi; Mr. Hill, of Bedford-row; two architects from Liverpool; and one from Manchester, are also competitors. Mr. Smith's plans are considered very good, as also a plan by Mr. W. T. Jackson."

IMAGES, AND THE SECOND COMMANDMENT.

SIR,—I cannot think that Mr. Kerr, in his letter in your impression of the 5th inst. has done more than shown the *abuses* to which the making of images has sometimes led. But the abuse of a thing is no argument against its proper use. The brazen serpent of Moses was set up by the *Divine command*. When it began to be *abused* then it was destroyed. But this does not prove that the making of the image itself was a breach of the second commandment. Mr. Kerr very justly remarks, that the punctuation and division into verses of the sacred writings is quite arbitrary, and the false punctuation of our version has done much to obscure the meaning of the second commandment, and if we read the first and that part of the second command relative to God's worship as one sentence, the meaning of the whole becomes much clearer. It would run thus:—"Thou shalt have none other gods but me, thou shalt not make to thyself any graven image, nor the likeness of anything in heaven above, or in the earth beneath, or in the water under the earth, thou shalt not bow down to them nor worship them;" and the meaning of this as interpreted by Catholic tradition is, not that the making of images or likenesses of animate or inanimate nature *per se* is unlawful, but the making of them *as idols*, and paying them divine adoration and worship; and the prohibition is more clearly pointed out in the following command,—"Ye shall not make with me *gods* of silver, neither shall ye make unto you *gods* of gold."—Exod. xx. 23. Reasoning on this command as Mr. Kerr does, and as modern Protestantism is wont to do, it would be a breach of this command to make any image or picture at all, sacred or profane. But knowing, as we do, that the temple was *filled* with images of cherubim on the hangings and on the veil, as well as on the mercy-seat itself; that there were carved images of pomegranates, and a molten sea standing upon twelve images of oxen, and images of flowers and lilies, and palm-trees, and "lions and oxen and cherubim" (1 Kings, vii. 29), all placed in the Temple under God's own direction; remembering the brazen serpent and other instances of the same kind; there can be no doubt as to the meaning of the command, viz. that *idols*, not *images*, are condemned; not the painting or embroidering or sculpturing "an image or likeness of anything in heaven or earth, or under the earth" is forbidden, but the making it with a view to paying it divine worship—not the making an image, but the making a representation of the Deity with a view to paying worship to that representation.

And with regard to this latter point of representing the Deity, it would seem that this was merely a temporary command, addressed especially to the elder Church, and not binding on those living under the Christian dispensation. The reason why an image of the Deity was forbidden, seems to be, that the human imagination was before the Incarnation utterly incapable of conceiving *a fit image of Deity*. But now that God has become incarnate, we may most fitly represent God in the *person of Christ*; and so what was impossible and profane to the Jews, becomes truthful and helpful to the Christian. With regard to Mr. Kerr's theory about the cherubim, I must confess to a liking to the old and Catholic "baby's picture-book idea," and which it seems is "discarded from all volumes above the value of sixpence coloured," and am certainly glad to find that the cheap baby's picture-books represent so faithfully the description given of the cherubim by the Holy Scriptures. That description is as follows:—

"And thou shalt make two cherubim of gold, . . . in the two ends of the mercy-seat, and make one cherub on one end, and another cherub on the other end. . . . And the cherubim shall stretch forth their wings on high, covering the mercy-seat with their wings, and their faces shall look one to another, towards the mercy-seat shall the faces of the cherubim be. . . . And there I will meet with thee, and I will commune with thee from above the mercy-seat, from between the two cherubims which are upon the ark of the testimony."—Exod. xxv. 18—22.

Mr. Kerr's "baby's picture-book" seems to convey a very truthful account of the mercy-seat, and of the Divine Presence manifested between the wings of the cherubim, and though "discarded by volumes above the value of sixpence," is apparently far more trustworthy than dearer volumes recording the modern views of enlightened Protestants. Again, Mr. Kerr seems to assert, and quotes Josephus to strengthen his view, that the cherubim were not images. That they were not *idols* is true, but that they were images is as true. "The wings of these cherubim [those in the second temple] spread themselves forth 20 cubits, and they stood on their *feet*, and their *faces* were inward."—2 Chron. iii. 13. That they were then more than "pairs of wings" is certain. They were figures having wings, and feet and faces at least; but even if they had not these, they were at any rate "images or likenesses of something in heaven above," and were placed by God himself in the most holy place in the temple, notwithstanding the second commandment, and this is all I argued for, viz. that the use of images, and pictures, and effigies in the holiest places, have no necessary connection with idolatry, and are not forbidden by the second commandment, that commandment referring, not to images, but to idols; not to the making of images, but the making them with the intent to worship them, and that the whole force and meaning of the commandment is in the prohibition "not to fall down and worship them." I am sorry to occupy so much space in your paper, and hope the importance of the question will plead my excuse.

ANGLICAN.

PROVISION FOR RAILWAY COLLISIONS.

RAILWAY authorities or officials have hitherto devoted but little attention comparatively to the preservation of human life, and it is chiefly through public interference that any measures to effect this purpose have emanated. There is even now great capability for the introduction of measures to ensure safety to life and limb. Supposing that precautionary means were perfect, so far as signals, &c. are concerned, accidents from collisions may, from the fallibility of human oversight, occur. The ends of all carriages used in passenger traffic ought obviously to be three times as solid as the sides. To deaden or lessen the breaking or splintering up of these, the introduction of a padding between two partitions of wood would probably lessen the disruption of such partitions or ends of carriages. Increasing the width of rails to double their present ratio, and of course the wheels also, might tend to lessen the danger of running off the line, besides producing an easier locomotion and greater steadiness of transit. Improvements such as have been just indicated would involve an outlay which railway proprietaries would not incur unless compelled, though

it is certain that large sums of money are frittered away by them for purposes serving no useful end, but ornamentally, often to an incongruous and useless extent,—as the stone and brick elevations at stations fully exemplify, and otherwise. The comfort of railway servants in this country is almost entirely ignored and overlooked, though one of great importance; for servants of all denominations or kinds will work better, and take greater interest in the duties they have to perform, when attention is paid to their own welfare and happiness. This is a subject too little understood (or at least acted upon) by public capitalists as well as private employers. The want of protection from rain and other atmospheric changes, and exposure to the sun's rays, is a serious evil, and one that in other countries, especially America, has been duly provided for. The tenders in the latter are covered over by what is termed there a "cab," or some similar and perhaps inappropriate designation. W. D. M.

RAILWAY MATTERS.

THE traffic returns of the whole of the railways in the United Kingdom, for the week ending May 29, amounted to 481,620*l.* and for the corresponding week of 1857, to 488,050*l.* showing a decrease of 6,430*l.* The gross receipts of the eight railways having their termini in the metropolis amounted to 196,378*l.* and in 1857 to 209,462*l.* showing a decrease of 13,084*l.* The decrease on the Great Western amounted to 4,630*l.*; on the North-Western to 4,360*l.*; on the Brighton to 6,809*l.*; and on the South-Western to 576*l.* But from this must be deducted 590*l.* the increase on the Eastern Counties; 1,908*l.* on the Great Northern; 130*l.* on the Blackwall; and 663*l.* on the South-Eastern. The receipts on the other lines in the United Kingdom amounted to 285,242*l.* and last year to 278,588*l.* showing an increase of 6,654*l.*——The directors of the St. Rambert and Grenoble Railway Company have introduced an innovation in the construction of their carriages, which has given general satisfaction. Travellers frequently complained of being deprived of the finest views when travelling through a picturesque country, and to remedy this inconvenience the directors have affixed outside seats to the carriages, to which the passengers ascend by two staircases placed at the extremity of the carriage.—— We learn from the *Melbourne Argus* that the tenders for the great railway works there had been opened with the following results:—There were three tenders for the whole works, one from Messrs. Randle and Holmes, for 7,010,324*l.* payment to be made in cash; one from Messrs. John Musson and Co. for 5,826,223*l.* payment to be made in cash, or in 6 per cent. debentures at par; and another from Messrs. Cornish and Co. for 5,449,202*l.* payment to be made in cash, or in 6 per cent. debentures at par. The whole of the tenders were subsequently handed over to a committee composed of the professional head of the Public Works Department, the engineer-in-chief, and the professional head of the Survey Department, to be analysed previously to the Government being called on to decide on their reception or rejection. Mr. Gabrielli gave in a tender in conjunction with Sir S. Morton Peto; but in consequence of informality it was not received.

RECENT PATENTS.*

J. NORRIS, jun., and G. WORSTENHOLM.—*Improvements in Machinery for making Nails, Bolts, Spikes, Screws, Rivets, and Screw Blanks.* Dated June 22, 1857.—The machinery is composed of shaping dies, a heading tool and feeder, all working by direct action from the axis of motion or driving shaft. Each set of these tools may be employed singly in one machine, or in duplicate.

VICTOR HIPPOLYTE LAURENT, Plancher-les-Mines, France.—*Machine for forging Nails and other similar Articles.* Dated August 21, 1857.—The various forging machines hitherto known hardly allow the forging, at a single heat, of small objects, such as a nail, for example. This invention is intended to produce by machinery the same objects as are obtained by hand-forging.

VICTOR PEAN, Paris.—*Protecting the Walls, Ceilings, Wainscots, and other parts of Buildings from Humidity.* Dated October 19, 1857.—This invention consists in coating walls, &c., with glass made adherent to sheets of wood or other material susceptible of receiving the application of glass by means of a composition which is described.

S. T. M. SOREL.—*New Mechanical Compositions, producing either House Paintings, Cement, or Plastic Paste to be moulded.* Dated June 19, 1857.—These compositions are obtained by combining the following substances in certain proportions:—chloride of zinc, a tartrate, muriatic acid, a feculent or amylaceous substance, water, and oxide of zinc.

E. B. OLOFSON.—*Improvements in the Manufacture of Pigments or Colours for preserving Iron.* Dated July 2, 1857.—This composition is a mixture of graphite (otherwise plumbago or black lead) and linseed oil, to which is added powdered white marble, or calx, and sometimes a small quantity of sulphur.

F. C. CALVERT and C. LOWE.—*Improvements in the Manufacture of Size.* Dated July 14, 1857.—This consists in the use of calcined amylaceous substances, salts of soda, potash, ammonia, magnesia, and mucilage, as a substitute for animal size in stiffening, sizing, preparing and finishing yarns, textile fabrics, paper, &c.

J. T. PITMAN.—*An improved Method of Making Carburetted Hydrogen Gas.* (A communication.) Dated June 30, 1857.—This consists in the use of fused metals, in connection with a suitable retort, so constructed as to pass carbono-hydrone vapours or substances beneath or in immediate connection with the surface of such fused metal.

ADOLPHE AMBROISE SALOMON COHEN, Paris. *Apparatus to be employed in the Manufacture of Drain Pipes and other light Articles, from Plastic Materials.* Dated November 18, 1857.—The first part of this invention relates to the moulding plates or holes through which the articles are expressed and moulded or formed. It consists in the application of a double or counter plate for this purpose. The second part of the invention relates to the apron or surface for receiving articles moulded or formed by expressing or forcing plastic material through mould holes or apertures, and facilitates the continuous action of machines furnished with the mechanism of the double moulding plates before mentioned.

* Selected from the condensed lists published in the *Mechanics' Magazine* and *Engineer* journal.

Books Received.

VARIORUM.

THE writer of "The Rat," one of Messrs. Routledge's little books, has a purpose beyond that of amusing with anecdotes and natural history; namely, to rouse his fellow countrymen to "universal warfare against those enemies of mankind, which, by their voracious habits, contribute to the impoverishing of our farmers, and the privation of our fellow creatures." Nothing is proof against them, and their numbers are appalling. "A party of farmers," the writer says, "with whom I was lately in conversation, gave different estimates of the number of these vermin on their respective farms. One estimated them at 250; consequently his losses amounted to half a bushel per day, or eleven quarters, three bushels, and a peck in the half-year. Another gentleman estimated his rats at 500; consequently his losses amounted to a bushel per day, or twenty-two quarters, six bushels, and a half in the six months. The chairman of the meeting estimated his rats at 750; consequently his losses amounted to one bushel and a half per day, or thirty-four quarters, one bushel, and three pecks in the half-year. Three of the gentlemen estimated their rats at 1,000 each, and, as a matter of course, their losses would be proportionately greater; that is to say, 1,000 rats, eating only a wine-glassful of corn per day each, and allowing in the same time only twenty-four glasses for waste among 1,000 feeding, will, in six months, or 182 days and a half, consume five bushels over nine loads of British corn."

If farmers would get rid of their rats and keep hens instead, they would find profit instead of loss.

Miscellanea.

STATE OF CHRIST CHURCH, YORK.—Owing to the dilapidated condition of Christ Church, York, meetings of the parishioners have been held to determine upon the steps proper to be taken. Mr. Pickersgill, the city surveyor, had pronounced the building to be in a highly unsafe state, and his recommendation was that it should be razed to the ground. A committee was appointed to obtain authority to take down the church, and to enter into negociations for uniting with some other parish.

PROFESSOR WESTMACOTT, R.A. will lecture on "Fine Art; its Object and Use," at the St. Bartholomew's Literary Institute, Gray's-inn-road, on Tuesday evening next.

THE CRYSTAL PALACE MUSICAL FESTIVAL.—The great *musical* event of the season is fixed for the 2nd of July, and will consist of a demonstration by the Great Handel Festival Choir, with full orchestral and military bands, to the number of 2,500. The Handel Festival Choir achieved an extraordinary success at the palace last year, and on this occasion will be reinforced by deputations of the best trained voices from the provinces and the Continent. Mr. Costa has used his utmost exertions since last year to keep the 1,400 London amateurs together and in constant practice; and they have now attained a degree of excellence unsurpassed by any choir in Europe. They will be reinforced by about 200 selected voices from the Bradford Choral Association, and by deputations from many provincial and continental societies. The instrumental music will be on a corresponding scale of efficiency. The stringed and wind bands of the Crystal Palace will be strengthened by the addition of those of the Royal Italian Opera, the Sacred Harmonic Society, and the Amateur Musical Society, and also by the full military bands of the Grenadier and Coldstream Guards. The concert will be conducted by Mr. Costa; Madame Clara Novello and Mr. Sims Reeves will sing the principal solos (including the famous "war song" from Costa's "Eli," by the last-named artist), and Mr. Brownsmith, of the Sacred Harmonic Society, will preside at the Great Handel Festival organ. This will be available to season-ticket holders.

OXFORD CONGRESS.—The General Architectural Congress has been held in this city, under the presidency of the Vice-Chancellor, and it has been attended by several architects. At the preliminary meeting at the Oxford Architectural Society's rooms, in Holywell-street, in the unavoidable absence of the president, the Very Rev. the Dean of Christ Church occupied the chair, and, in a brief address, stated the general objects of the Congress, and directed attention to the recent progress of architecture as accomplished in this city and neighbourhood. Of what was read and seen we may have another opportunity to speak.

MUTILATION OF CHURCH MONUMENTS.—In the *Morning Post* a letter from Mr. Roach Smith lately appeared, making public the violation of a church monument for some unworthy object. So far as we can make out the particulars, says the *York Herald*, it seems this: the monument of Sir John Talbot, in Broomsgrove Church, was consulted by some of the parties conducting the great Shrewsbury peerage case; and it would seem Mr. Roach Smith was solicited to examine the inscription. Mr. Smith found that while the greater portion of the inscription was quite perfect, that part which related to the fact that Sir John had a numerous progeny by his two wives, had been cut down almost level by some skilful artificer, and then painted over. Mr. Smith thinks it is quite time the Government instituted some stringent measures to protect our church monuments, which ought not to be at the mercy of unscrupulous violators of records.

BUILDING ACCIDENTS.—In St. James's-parade, Bristol, a Presbyterian Church is in course of erection, with a house adjoining. The work of excavation for the foundation of the church caused the ground of the house to give way, and it fell. Happily the only injury done was to the building and household goods.——A portion of the heavy cornice on Mr. Lamb's upholstery warehouse, John Dalton-street, Manchester, fell last week, smashing the paving-stones by its weighty descent. To prevent serious accidents, the whole of the cornice, which was very wide, deep, and heavy, has been removed, it being supposed that it would speedily fall if not taken down. Some time ago there was a similar fall of a cornice on the Stamp-office in Cross-street. These flimsy stucco productions, remarks the *Courier*, are both dangerous to the public, and discreditable to the architects who use them.

INSTITUTION OF MECHANICAL ENGINEERS.—A special meeting of this institution is to take place at Newcastle on the 24th of August next, when a collection of models and drawings illustrative of recent improvements in steam-engines, boilers, machinery, and tools, together with philosophical apparatus and specimens of mechanical art generally, will be exhibited, and papers upon important subjects will be discussed.

THE WALLS OF CHESTER.—We hear, says the *Chester Chronicle*, that the portion of the walls between the Phœnix Tower and the Northgate (which is, we believe, the oldest part), is in a crumbling state. This relic of hoar antiquity is likely to come down by the run one day, unless the Improvement Committee see to it.

AN IRON CHURCH.—Messrs. Tupper and Co. have just completed at Westbourne-road, Barnsbury-park, Islington, for the district of the Rev. J. K. Harrison, an iron church. It is calculated to seat comfortably 500 persons, but at the opening, on Friday, the 4th, the congregation numbered over 600. The cost of the church, including seats, desk, pulpit, communion-table, &c. complete, will be something under 1,000*l.* or less than 2*l.* per sitting. The work was completed in six weeks from the commencement.

THE LATE BARON D'HERVEY.—The railway world has sustained a great loss by the death of the Baron d'Hervey, chief administrator of the French Eastern Railway (*Chemin de Fer de l'Est*). Born at Rouen in 1780, he entered the commissariat department, and served therein with distinction during the wars of the first Empire. Promoted to the grade of military intendant, he filled, at two different periods, the post of director of the *personnel* of the War Minister under the celebrated Marshal Gouryon-Saint-Cyr. In 1830 he was appointed military intendant for the three departments of Normandy; and while so engaged he organised in a successful manner the military trains which were conspicuous for active service in the Crimean war. The model establishment of Vernon is wholly due to the talent and engineering experience of the Baron d'Hervey. On his retirement from public service in 1845, when the "*Chemin de Fer de l'Est*" sought a director gifted with energy to grapple with the difficulties of a vast enterprise, and to govern an immense staff, their choice fell upon the baron. He lived to see this great enterprise carried out, by the late opening of the direct line from Paris to Mulhouse, a few weeks ago; and as the *Moniteur* says, "*Partout il a passé, il a laissé le souvenir d'un homme d'honneur et de haute probité.*" He leaves one son, the author of some scientific works of merit.

PUBLIC GARDENS FOR LEWES.—It having been ascertained that the cricket-ground, Mountfield, and the field to the south, may be purchased by the town, and used as public gardens for botanical and recreative purposes, a meeting was held at Lewes, to consider as to the formation of a company, &c. A committee was appointed to carry out the object in view, and to draw up a prospectus and raise capital, not exceeding 5,000*l.*

ELECTRO-TELEGRAPHIC PROGRESS.—The Turin correspondent of the *Times*, in a description of the articles shown at the Sardinian Exhibition of manufactures, &c. now or lately open in that city, thus alludes to the "autographic telegraph," an invention of Signor Bonelli, the director of Sardinian telegraphs. Whether this be one and the same with that lately noticed as an invention by the Abbé Casselli, of Florence, we cannot clearly make out; but there is some resemblance:—"In a small machine that stands on one side of a room you insert a slip of prepared paper, which looks as if it were silvered, and on which you have written a sentence. This machine communicates by an electric wire with another machine, of similar appearance, at the other end of the room. Between two small rollers of the latter machine you insert a slip of yellow paper, which passes through the rollers, receiving in its passage a green stripe down its centre, on which appears, in black, the exact *fac-simile* of the writing on the paper put in at the other end. The transmission is only across a room, but it is presumable, and the inventor assures us, that it might be made with equal ease and correctness across a continent or under an ocean, the wires once laid down. The marvel is effected by a combination of chemistry and electricity. Should no practical objections be found to the adoption of the system, this will be, as far as correctness goes, the very perfection of telegraphic transmission."

UNIVERSITY COLLEGE, LONDON. — Professor Donaldson has been elected Dean of the Faculty of Arts and Laws at University College for the session of 1858-9. We believe this to be the first occasion that an architect, *as such*, has been elected in this country to such a position in a college in connection with one of the leading universities of the United Kingdom.

CANAL BETWEEN THE ATLANTIC AND PACIFIC.—The French papers publish a convention concluded and signed between the governments of Costa Rica and Nicaragua on the one part, and M. Millaud and Co. of Paris, on the other, relative to the concessions of an interoceanic canal by the river San Juan and Lake Nicaragua. The company are to commence the work in two years, and complete it in six, and the channel is to admit two of the largest ships to pass abreast. But what of the volcanic disturbances to which Central America is so subject?

LIGHTING RAILWAY CARRIAGES.—With reference to a paragraph in your journal of June 12, in which the attention of railway managers is called to the present defective lamp now used for the purpose of lighting railway carriages, a correspondent mentions that Mr. Defries has patented an improved lamp, which answers all purposes required by the public. It gives a light to read by equal to gas, and has been used in some of the South-Eastern carriages and Great Northern. It has been brought before the notice of nearly all the principal railway boards, but has not received that attention which might have been expected.

KEW-GARDENS are now in all their summer beauty and splendour, the lawn is in the most perfect order, the American and rose gardens alone are a sight of surpassing beauty and loveliness; a new lake has been added to the attractions of this delightful resort. The gardens are open free every day at one, Sundays at two, closing each day at seven.

CHEMICAL ORGANIC TRANSMUTATIONS: "BREAD FROM COAL."—The *Morning Post* says, in a somewhat enthusiastic article on the wonders of chemical science,—"Coal presents us with all the ingredients for making the best of bread; and when we consider what the chemist has already done with coal, it need not excite surprise that he should knead it into the staff of life. Look at the splendent lights which illuminate the streets! at the beautiful translucent candles called paraffine! admire the brilliant dyes, of all the colours of the rainbow, which are extracted from that hard black mineral! and then cease to think it absurd to expect that from the same substance, which contains the elements of wheat, we should be able to obtain loaves of bread. Professor Frankland informs us that within the last five years nearly seven hundred organic substances have been produced by various modes of combining the elements which are found in coal, and among the compounds thus produced are the peculiar essences which constitute the flavours of our choicest fruits. When we bear in mind, that only thirty years ago the production of *any* organic compound without the agency of vitality was considered impossible, and that seven hundred of such products have been since formed, principally within the last five years, there is reason to expect that further researches and discoveries will ere long disclose the means of making from the inorganic elements all kinds of food adapted to the sustenance of man. And that which thus seems within the range of probability for the production of food is equally possible for the materials of clothing. When that millennium arrives the fields will be turned into flower gardens and ornamental parks, fountains of nectar and of fragrant liquid perfumes will gush forth on every side to renovate and refresh; the butcher and the pet lamb will lie down in peace together; beggars and paupers will be no more; and the nation will rejoice in universal plenty." All this will not come to pass in our day it is to be feared; but, sanguine as the writer in the *Post* appears to be, there is a good deal of truth in what he says as to the wonders of chemical transmutation in substances not strictly mineral. A sort of nauseous bread, we recollect, was some years since made from saw-dust, but it had not entered into the imagination of chemists at that time to produce it out of coal!

A WORKMAN ENCLOSED IN A WATER-MAIN.—In Ninth Avenue, New York, a man was lately entombed in the Croton water-mains, which were being laid down in that avenue. The pipes, when laid, have to be caulked inside as well as out before they are cemented, in order to make them perfectly tight. The 2-feet mains in the Ninth Avenue were laid from both directions, and upon the connecting-pipe being put down, it was necessary for a man to enter in order to caulk them, the intention being to extricate him through the stopcock. The work was completed, and the pipes soldered on the outside; after which the workmen proceeded to unscrew the stopcock, but, to their dismay, discovered that they had no wrench sufficiently large to accomplish the work, and also that there was not a wrench in New York that would answer the purpose. In the meantime the man was shut out from the world in his narrow iron tomb, compelled to lie down, and with a fair prospect of suffocation. The labourers finally procured sledge-hammers, and, by repeated battering, succeeded in breaking a hole through the thick iron pipe.

ALUMINIUM.—An important discovery, according to *Galignani*, has just been made at Florence; a simple workman having found out the means of making aluminium in a manner much less expensive than has hitherto been known.

FREEMASONS' NEW HALL AT EDINBURGH.—The Grand Lodge of Scotland's new hall, now in course of erection at 98, George-street, is being rapidly proceeded with, and the chief stone is to be laid on the 24th inst. In style the building is Roman, but of little architectural pretensions. It is contemplated, according to the *Scotsman*, hereafter to replace the face of the structure by a design which will not only give an imposing character to the building, but prove an ornament to the street. Internally, the hall represents a temple of the Ionic order. The ceiling consists of an elliptical arch, supported by a range of Ionic pilasters, with a rich entablature. Over each pilaster, on the frieze, there are to be masonic devices, with a scroll ornamental frieze between each, the other members of the cornice being also ornamented. Light is admitted to the hall by three large windows, placed at the south extremity, and also by numerous panelled compartments, filled with plate glass, in the ceiling. At the north end of the hall there is to be an orchestra, having an arched "back" and space for an organ. The plans have been prepared by Mr. David Bryce, Grand Architect, and are being realised under the superintendence of Mr. D. Bryce, jun. The building will cost 4,500*l.* The purchase of the site involved an outlay of fully 5,000*l.* making the total cost of the edifice nearly 10,000*l.*

OUR DITCHES.—I reside in a village twelve miles from town, where the open ditches on each side of the road receive the drainage of the houses built on the higher ground. The consequence is, that fever of a most malignant kind has been amongst us. My neighbours have complained at the vestry, and a committee, headed by the rector, have been round to view the nuisance more than once, and promised us their assistance to abate it. I suppose, however, they have no power, as months have elapsed since their last visit, and of subsequent applications no notice has been taken. Will one of your correspondents inform me what steps are requisite to remedy the evil? Your columns are always open to complaints of this nature; and hundreds here, and elsewhere, will be thanful to know the proper course to pursue.

T. LIGHT.

[ADVERTISEMENT.]

TO THE EDITOR OF "THE BUILDER."

SIR,—Observing in one of the late numbers of the *Builder*, a letter referring to Messrs. Clark and Co.'s, (15, Gate-street, Lincoln's-inn-fields) Patent Revolving Shutters, and having daily a great number of applications respecting the one they erected for me at my premises, 78, 79, and 80, Fleet-street, which I believe to be the largest ever made, to save myself trouble and for the benefit of your readers, I beg to state it has given me the greatest satisfaction, and its advantages are made manifest by the fact, that one of my men can open or close one of the largest shop-fronts in London (18 feet by 24 feet) in thirty seconds, with the greatest ease, that formerly occupied the time of three men upwards of half an hour, and obviates the great risk of breaking the glass and damaging the premises, which always will attend the use of the common lifting shutters. It also presents a greatly improved appearance, and has attracted universal attention.

I remain, Sir, your obedient servant,
(Signed) CHARLES M'LEAN.

Fleet-street, August 29, 1853.

TENDERS.

For three warehouses, Cannon-street, City, to be built for Mr. John Hudson, under the superintendence of Mr. Thomas Hayne. Quantities supplied by Mr. H. W. Jass:—

Ashby and Sons	£13,987	0	0
Brass and Son	13,486	0	0
Holland and Hannon	12,425	0	0
Lawrence and Son	12,240	0	0
Bowack	12,145	0	0
Lucas, Brothers	11,940	0	0
Piper and Son	11,916	0	0
Raby	11,873	0	0
Mallcott	11,790	0	0
Wilson	11,495	0	0
Gammon	11,485	0	0
Mansfield and Son	11,450	0	0
Patrick and Son	11,440	0	0
H. Burton	11,348	0	0
Myers	11,176	0	0
Batterbury	10,980	0	0
Moxon	10,700	0	0

For the erection of two warehouse buildings, Montague Close, Southwark, for Messrs. James Hartley and Co. Mr. T. C. Clarke, architect. The bills of quantities prepared by Mr. Richard Roberts:—

Lucas	£9,926	0	0
Cubitt and Co.	9,720	0	0
Browne and Robinson	9,557	0	0
Ashby and Sons	9,095	0	0
Jay	8,950	0	0
Brass and Son	8,947	0	0
I'Anson	8,776	0	0
Piper and Son	8,655	0	0
Lawrence and Sons	8,430	0	0
Coleman	8,220	0	0

For ironwork, delivered on site and fixed by contractor:—

Grissell and Co.	£1,704	0	0
Lawrence, Brothers	1,583	0	